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# THE PHYSICIAN AND HIS PATIENT: THEIR RECIPROCAL RELATIONS.*

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NEW ORLEANS.

The subject which I have chosen to present tonight is one which should be of interest to all of us, both laymen and physicians. Modern medicine, because of specialization and the disappearance of the family physician, has produced a change in the relationship of the physician to his patient. This change, while apparently desirable in some respects, is definitely undesirable in others. Whenever a patient consults a physician, both physician and patient incur certain responsibilities toward each other. While it may seem trite to re-discuss these responsibilities, I feel that, because often they are disregarded, one is justified in reviewing them. Before proceeding to the discussion of these responsibilities, I wish again to emphasize that there are reciprocal responsibilities which should be observed.

At the present time the tendency in medicine is to disregard the practice of the art of medicine and stress only the science of medicine. This is probably due to several factors. Often a patient recovers from a malady for which there is no specific therapy. The recovery occurs as a result of or in spite of the prescribed treatment. All individuals are human, and the physician, unless critically inclined, is apt to believe that the treatment which was instituted was responsible for the improvement. An attempt is made, therefore, by medical schools to develop the critical attitude in their students, in order that their judgment will not be warped by an incidental or even accidental recovery. The development of medical centers, group medicine, and clinics, with their attendant interest in scientific medicine, are responsible, in part, for the elmination of the art of medicine. The patient is often not considered by the medical attendant as an individual. As emphasized by Peabody,[1] the present day physician is prone to treat a patient as a certain disease and not as an individual. This is exemplified in many schools, hospitals, and even in private practice. Mrs. Jones, who is nervous and complains of palpitation of the heart, is referred to by the student, interne, and physician, not as Mrs. Jones but as an interesting case of exophthalmic goitre. This patient, in addition to having certain changes in her thyroid gland, which are responsible for her symptoms and signs, has had considerable worry at home, due to the illness of children, which has been largely responsible for, or at least has greatly aggravated, her condition. If she is treated as a case of exophthalmic goitre only, the most important part of the treatment may be neglected. An important responsibility of the physician to the patient is, therefore, to treat the patient as an individual and not

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merely as a disease. Thus, the psychology of the patient will not be disregarded. The importance of considering the psychology of the patient has been demonstrated by Lawhead,[2] who found that among 1100 individuals desiring medical care 722 had employed osteopaths, 120 chiropracters, 133 Christian Scientists, and only 125, about 10 per cent, had employed educated, non-sectarian physicians. The reason that 90 per cent of this group of individuals consulted irregular practitioners is because of the medical profession's tendency to treat the patient as a scientific objective and not as an individual.

The first essential in treating any individual who is not well is the establishment of a correct diagnosis. Chaney,[3] in discussing the essentials in good surgical practice (which is also as true in other types of practice), divides surgery into four groups. He gives the following percentages denoting the relative importance of each group:

Surgical diagnosis—50 per cent
Surgical pathology—25 per cent
Surgical technic—15 per cent
Surgical aftercare—10 per cent

"Correct diagnosis depends largely upon the care with which the case history is taken, the thoroughness with which the physical diagnosis is made, and the skill with which the details of the history and physical examination are correlated." (Reginald Fitz)[4]. There is a tendency in practice in establishing a diagnosis, especially if the practitioner be busy, to neglect the most important weapons in his armamentarium, i. e., careful history and thorough physical examination. A careful and complete history often is the most important factor in making a correct diagnosis. A history of long continued indigestion associated with qualitative dyspepsia, inability to eat certain foods, especially greasy foods, associated with an uncomfortable feeling in the abdomen and belching of gas, together with a tenderness over the liver and gall-bladder, justifies a diagnosis of inflammation of the gallbladder. In this specific established case, as in many others, the history is of utmost importance. The performance of a complete physical examination cannot be over-emphasized, even though the patient complains of an apparently trivial condition. How frequently does a patient with a brain tumor consult an occulist because of failing vision or the same individual consult an ear specialist because of disturbance in hearing. The patient with Bright's disease may also have ocular symptoms. Not infrequently a patient complains of bleeding from the rectum, and his physician, either because of lack of time or because of the patient's timidity, fails to perform a rectal examination. A diagnosis of hemorrhoids is usually made, and the patient is treated for this condition. Even though the most frequent cause is a cancer, and any physician who fails to examine the rectum in such a case is not only not assuming the responsibility which he owes to the patient but is guilty of gross neglect. I have seen four hopelessly inoperable cases of cancer of the rectum which had been treated for varying periods of time by physicians as cases of hemorrhoids without a rectal examination ever having been made.

Whereas a careful history and physical examination are most important in making a correct diagnosis, each patient, when consulting a physician, is also entitled to certain laboratory examinations, especially an examination of the urine and, whenever indicated, other special examinations, such as blood examination, roentgen-ray examinations of the stomach and intestine, chemical examination of the stomach contents, and many others too numerous to mention. An examination of the urine should be performed in every case, and it is absolutely imperative before a general anesthetic is given. The failure to recognize an unsuspected case of diabetes may cause the death of the patient following the administration of an ether anesthetic. The physician in

protection to both the patient and himself should insist upon a roentgengram being made in all suspected fractures. Many law suits are prevented by the observance of this rule.

If a condition is found to exist which the physician is unable to treat because of insufficient training in that particular field or if the diagnosis is not clear, he should obtain consultation with other physicians. "Consultation, especially with those who have a reputation of intellectual superiority, lessens responsibility, anxiety, and risks of personal blame." (Cathell)[5]. As it is impossible for any one individual to master the entire science of medicine, specialists, who are individuals who have tried to master one particular field of medicine, have become necessary. I wish to digress at this point merely to state that, whereas specialists are desirable, there are many specialists who do not deserve such a name. Any individual specializing in a particular branch should first spend several years in general training, in order that he may not become too narrow in his specialty. In the event the physician is unable to treat the patient properly, the patient should be referred to the specialist for such treatment, following which the patient returns to the original physician.

The physician owes it to his patient to submit all specimens which are removed surgically to a competent pathologist for examination. Not infrequently evidence of cancer is found even though such a condition was not suspected before operation. According to McCarty[6], this occurs in 8 per cent of unsuspected lesions removed at the Mayo Clinic. Frequently, the reverse condition is also true. Patients who preoperatively present all the signs and symptoms of cancer can be reassured after operation, because the examination of the tissue removed showed no evidence of malignant disease. Another advantage of pathological examination is the ability in certain cases of malignant tumors to determine whether the tumor is relatively malignant or relatively benign. Broders[7] first showed that from the examination of the tissue removed one might predict what the clinical course would be. He has shown that certain cancers, even though they have existed over long periods of time, and have extended relatively far, can be cured completely because of their relative benignancy.

Every patient is entitled to, and many insist upon, having a prognosis. In the case of malignant disease the physician is probably justified in not giving the diagnosis to the patient. He should, however, in justification to the patient and in justice to himself, tell the exact status of his patient's condition to a responsible relative. Under certain conditions it is desirable to tell the patient, in order that he may arrange his business affairs. Care should be exercised, however, in giving the prognosis, as occasionally individuals apparently suffering from hopelessly inoperable cancer recover, without the institution of any particular type of treatment. The diagnosis in this case was fortunately wrong. If, however, the patient had been given a bad prognosis and, as a last resort, had consulted an illegal practitioner, the cure which resulted is credited to chiropractic, Christian Science, or whatnot.

Medical science is continually advancing. Due to an immense amount of research work performed in the various branches of medicine, a definite progress is being made. Because of this, every physician who is engaged in the practice of medicine owes it to his patient to keep informed of the advances in medicine. I do not mean by this that everything which appears in medical journals should be accepted as true. Unfortunately, there is too much written. It is, however, essential that the physician subscribe to one or two standard medical journals and that he familiarize himself with the articles which appear in them. It is also essential that he attend medical meetings, in order that he may not become too provincial and self-satisfied. The contact

with his colleagues at such meetings is not only instructive but also stimulating. The physician who would attempt to treat diabetes at the present time without ever employing insulin or the individual who would treat pernicious anemia without any knowledge of the "liver diet" is not fulfilling his obligation to his patient. Patients, themselves, are often responsible for their physician's not attending medical society meetings. Frequently, a physician will hesitate leaving his patients, as he feels it is an injustice to go away. The patients, in turn, owe it to their physician to permit him to take such leaves of absence, that he may attend clinics or medical meetings, as they are the ones who will profit by such procedures.

Considerable is being written at the present time about the passing of the family physician. This is undoubtedly true, and such a condition is certainly to be regretted, because no one will ever be able to take the place of such an important individual in a community. Patients, themselves, are partly responsible for this. Unfortunately, as the result of specialization, patients will frequently consult a specialist directly without first consulting their family physician. One who is suffering from dimness in vision, often consults an occulist, who may or may not detect that the condition is due to a very severe form of Bright's disease. Every patient should have a family physician to whom he may go in case of any illness. The physician should have charge of the patient's case, and if it becomes necessary to obtain the services of a specialist he, and not the patient, should be the one to decide which specialist should be consulted. It is, however, essential that the specialist should be chosen because of his ability and not because of any personal preference. As emphasized by Leigh[8], the family physician should keep a life record of the patient, including all illnesses, together with complete findings during and after each illness. When a specialist is consulted conferences between the family physician and the specialist are not only desirable but imperative. The family physician may supply the specialist with considerable valuable data obtained from the previous record of the patient.

Whenever consulting a physician the patient owes it to the physician, as well as to himself, to give a complete history and permit a thorough physical examination. Frequently, because of false modesty, an individual will refuse to give certain points in the history which may be extremely important. This same individual may also refuse to allow a complete physical examination. In such a case the physician should refuse to assume the responsibility of the case. An obligation which the patient owes himself really more than the physician is the consultation with his physician at certain repeated intervals for complete physical examination. In this way, often unsuspected lesions are found. A woman who has been unconscious of any lesion may consult her physician for periodic health examination. He finds a lump in the breast, which is an early stage of cancer. The cancer which is discovered early is curable by surgical removal. In fact, the present day treatment of cancer consists of early diagnosis of the lesion and complete eradication of the focus. The value of periodic health examination cannot be over emphasized.

Another obligation which the patient owes to his physician is the prompt payment of the physician's bills. Probably due to the laxity of members of the medical profession themselves, because medicine, with its high ideals, is not commercial, the general tendency is to postpone the payment of the physician's bill until all other bills are paid. Not infrequently, the physician when asked what his fee is dismisses the subject at the time by saying: "Oh, never mind about that now." Unfortunately, many physicians have gotten the idea that the question of fees should never be discussed with the patient, as it might lower the standards of the medical profes-

sion. A patient occasionally objects to the fee which the physician charges because of the comparatively short time which was spent with the patient. One must not forget, however, that many years have been spent equipping that particular physician so that he is able to care for his patient. At the present time, the minimal training required is six years. Practically no physicians, however, are content without spending at least one to two years in a hospital after the completion of the medical school training. Anyone desiring to go into a specialty must spend an additional four or five years in the special training. The patient who objects to a $10.00 fee should remember that the opinion given is made possible only through the expenditure of large sums of money as well as many years of training and experience.

The physician is subject to beck and call day and night, and when needed is always ready to go. How frequently is he called out at night unnecessarily to see a young child who has been sick for several days without any apparent improvement. As the child is unable to sleep, the doctor is called without regard for his rest.

Whenever possible all consultations should be made in the physician's office, because at his office it is possible for him to make the best examination with the least amount of effort. In this way his energy is saved, and the patient receives more benefit. Except in cases of absolute necessity the physician should not be called on holidays and Sundays, because he, as other human beings, is entitled to periods of rest. If he is able to obtain this rest he is more efficient, and is able to serve his patient better than otherwise. Please do not construe from these remarks that I wish to intimate that he should not be called on holidays or during the night. No one should hesitate to obtain the services of a physician whenever such are necessary. Very frequently, however, the physician is called at very inopportune times for conditions which are not urgent, which have been existent for hours, or even days, and which are not progressive. In so disregarding the physician's welfare, the patient disregards one of the important responsibilities which he owes his physician.

It is imperative that a patient have absolute confidence in his physician. If such confidence is not present it is far better for the patient to consult another physician, as the treatment of the mind of the patient is often as important as the treatment of the physical derangement.

I hope that in this short presentation I have been able to convey to you the various responsibilities which the patient and the physician owe to each other. If both the physician and the patient are to obtain the maximum results, these responsibilities must be observed. Without the observance of these responsibilities, the physician's efforts will be more or less fruitless, with the result that the patient will not obtain the maximum benefit. Whenever the physician undertakes the care of a patient, great are both their obligations.

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# THE STATE ASSOCIATION AND THE PUBLIC HEALTH PROGRAM.*

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The status of the public health program in Mississippi today is due largely to the foresight, vision, and zeal of the members of the State Medical Association. The progress which has been made in the field of public health must justly be credited to this Association, likewise the shortcomings and failures in the public health movement must be charged to the same source. The State Board of Health is the child of this Association since all of the members of that Board, with one exception, are members of, and were nominated by this Association. The majority of the members of the Central Staff, selected by this Board of your own choosing, and the medical field staff are members in good standing of this Association. Thus, it can be readily seen that this Association, in return for the privilege accorded it by law of selecting the members of the State Board of Health, has taken unto itself the grave responsibility of promoting and leading in the matter of protecting the public health. Public health progress can not and should not outstrip the wishes of this Association. Fortunately for this state the medical profession has always lead constructively in the field of public health. So long as this constructive leadership is maintained by the profession, the general public will gladly follow. This Association, therefore, should be keenly interested in, and thoroughly conversant with, the successes and failures of this, its child. It is deemed proper and expedient at this time to give a brief outline of some of the recent public health accomplishments.

During the past few years the State Board of Health has enthusiastically stressed the establishment of permanent full time county health departments. The experiences of not only the State Boards of Health of the various states, but also of the Rockefeller Foundation and the United States Public Health Service, have thoroughly demonstrated that the public health can be more adequately and economically conserved through this agency than by any other method. In this state, phenomenal progres has been made in the creation and maintenance of full time county health departments. At present twenty-nine out of the eighty-two counties, embracing 48 percent of the total population, have reasonably adequate local health service. That this work is being placed upon a permanent basis is revealed by the fact that no county has discontinued full time health service since 1924. It is indeed a pleasure to report that the local medical profession should share largely in the credit for this worthwhile accomplishment. In several of the counties in which full time work was recently inaugurated members of the local medical profession sponsored the movement and were directly responsible for the local contributing agencies making an adequate appropriation for local health service. Since the State Board of Health has seen fit to lay particular stress upon this phase of work, it is deemed fitting at this time to outline briefly some of the chief activities of a full time county health department.

## EDUCATION

In executing a satisfactory public health program the education of the masses is the sheet anchor of public health workers. It is the duty of the local health department to teach the people by public lectures, newspaper articles, conferences (both public and personal), and by all other known means of disseminating knowledge, the sources of infection, the modes of transmission, and the common sense methods of prevention of the acute infectious diseases. The main purpose of such an educational campaign is to acquaint the general public with the scientific public

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health facts which the medical profession has had in its possession for the past quarter of a century. To acquaint the people with these facts in such manner as to get them to make practical application of this information is one of the main functions of full time health workers. The full time health department is in reality a liaison agent between the general public and the medical profession.

CONTROL OF COMMUNICABLE DISEASES.

A health department that functions properly will reduce the incidence of communicable diseases. This is brought about by securing more promptly accurate reports from the medical profession. The full time health worker gives the medical profession something in return for the reports received. The moment a physician reports a case of communicable disease to the (full time) health department he shifts the responsibility for the spread of infection from that case from his shoulders to that of the health department. It is the duty of the full time health department to visit the cases of communicable diseases reported by the physicians for the purpose of giving the attendants the necessary instructions relative to bedside precautions, of isolating the cases, and of quarantining the contacts. The treatment of the case in question is left with the family physician. If the disease happens to be one for which there is an immunizing agent, it is the duty of the health department to administer this agent to all contacts. The health department administers typhoid vaccine, smallpox vaccine, toxin-antitoxin, and performs the Schick test free of charge to any of the citizens of the county under its jurisdiction. During the year 1928 the full time health departments gave 136,000 doses of typhoid vaccine, 67,000 doses of toxin-antitoxin, and vaccinated approximately 40,000 people against smallpox.

CHILD WELFARE.

It is the duty of the county health department to make medical examinations of preschool and school children for the purpose of detecting any physical defects which are likely to interfere with the mental and physical growth of these children. All defects thus found are reported to the child's parent or guardian with the request that the child be carried to the family physician for such corrective work. It is the function of the health department, in whatever way possible, to get these children into the hands of the medical profession. The correction of these physical defects is a responsibility that devolves upon the local practitioners of medicine and is in no way a public health function. During the year 1928 approximately 90,000 school children and pre-school children were given the regular physical examination and the necessary followup work was done for the purpose of inducing corrective work. The question naturally arises, is this work worthwhile? The answer to that question is that during the year 1928 approximately 24,000 corrections of physical defects were reported by the various health departments. No doubt more corrections were effected than were reported since at present the system of ascertaining the number of corrections made is somewhat inadequate.

ENVIRONMENTAL SANITATION.

A full time health department that functions properly must see to it that the people under its jurisdiction reside in an environment that is as nearly free from health hazards as it is possible to make it. The full time health department sees to it that the public water and milk supplies are properly safeguarded and offers advice and information relative to private water supplies. The results of the various health department's supervision of the public milk supply is that there has not only been an improvement in the quality of milk supplied the people, but a marked increase in the quantity. It is the duty of the local health department to inspect all food vending establishments to see that they comply with the rules of modern sanitary practices. Of all the factors which are likely to have a definite bearing upon the health

of a community, the proper disposition of human waste matter is probably the most important. It is a routine procedure for the local health departments to give special attention to this problem. The sanitation of homes in thickly populated sections and or rural school premises is given first consideration. During the year 1928 radical changes in the method of disposing of human excreta were effected at 19,765 places in the organized counties.

This is but a brief resume of the major activities of a full time county health department. Time and your patience will not permit of a more detailed discussion.

What then, if any, are the results which have been accomplished by this full time local health service? The Bureau of Communicable Diseases collects, tabulates, and makes ready for use data relative to the incidence of and deaths from the more common communicable diseases. During the year 1927, 97 per cent of the physicians reported on clinical report cards the cases of typhoid fever, diphtheria, scarlet fever, and smallpox seen by them. The records of deaths are in all probability more accurate than are the morbidity reports. However, the following comparative tables are very significant and show rather strikingly the effect full time local health service has had on the incidence of and the death rates from these diseases. The following facts should be taken into consideration when analyzing these statistics:

First, approximately 54 per cent of the population of the full time counties is black while in the part time counties the rates between white and black are approximately 50-50.

Second, as a general rule the larger centers of population are in the full time counties, hence there is encountered greater congestion of population which in turn favors more ready transfer of infection.

Third, the full time health departments probably secure more uniformly accurate morbidity reports from the physicians.

**Case Rates and Death Rates per 100,000 population in the Full Time and Part Time Counties during the year 1927.**

| | Total pop. in Full Time Counties—601,435 | | Total pop. in Part Time Counties—1,189,183 | |
|---|---|---|---|---|
| | —CASE RATES— | | —DEATH RATES— | |
| | Full Time | Part Time | Full Time | Part Time |
| Diphtheria | 72.21 | 100.38 | 8.13 | 10.75 |
| Scarlet Fever | 52.95 | 58.71 | .66 | 1.00 |
| Typhoid Fever | 83. | 92.14 | 10.12 | 16.29 |
| Smallpox | 8.63 | 26.54 | .16 | .25 |
| Tuberculosis | 222.77 | 182.70 | 87.31 | 104.66 |

**Case Rates and Death Rates per 100,000 population in the white race in the Full Time and Part Time Counties during the year 1927.**

| | Total white pop. Full Time Counties—277,975 | | Total white pop. Part Time Counties—575,987 | |
|---|---|---|---|---|
| | —CASE RATES— | | —DEATH RATES— | |
| | Full Time | Part Time | Full Time | Part Time |
| Diphtheria | 110.21 | 157.94 | 9.69 | 14.35 |
| Scarlet Fever | 104.11 | 113.14 | 1.43 | 2.07 |
| Typhoid Fever | 60.31 | 97.74 | 5.38 | 8.99 |
| Smallpox | 8.97 | 24.04 | 0 | 0 |
| Tuberculosis | 179.14 | 158.12 | 31.23 | 48.78 |

**Case Rates and Death Rates per 100,000 population in the colored race in Full Time and Part Time Counties during the year 1927.**

| | Total colored pop. in Full Time Cos.—323,460 | | Total Colored pop. in Part Time Cos.—613,196 | |
|---|---|---|---|---|
| | —CASE RATES— | | —DEATH RATES— | |
| | Full Time | Part Time | Full Time | Part Time |
| Diphtheria | 39.55 | 45.96 | 6.79 | 7.33 |
| Scarlet Fever | 8.65 | 7.33 | 0 | 0 |
| Typhoid Fever | 102.58 | 86.71 | 14.21 | 23.14 |
| Smallpox | 8.34 | 28.85 | .30 | .48 |
| Tuberculosis | 260.48 | 205.54 | 135.65 | 157.13 |

It can readily be seen from these tables that the death rates from these particular diseases are considerably higher in the part time counties than in the full time counties. The case rates are uniformly much lower in the full time counties than in the part time counties except that for tuberculosis. In many of the full time counties a county-wide tuberculosis survey has been made and this factor would have a tendency to elevate the case rate for this disease. The tuberculosis death rates would tend to indicate that either there have been more cases of tuberculosis in the part time counties than were reported or that the therapeutic measures used in the part time counties were not as efficacious as those used in the full time counties. Attention is called to the case rates of typhoid fever in the negro race. The case rate per 100,000 population was 102.58 in the full time counties, and 86.71 in the part time counties. The death rates were 14. 21 and 23.14 per 100,000 population in the full time and part time counties respectively. These figures would indicate that either the doctors in the part time counties are not seeing as large a percentage of the cases of typhoid fever among the negroes or they are not treating the diesase as successfully as their fellow practitioners in the full time counties. Data in the Bureau of Communicable Diseases indicate that the physicians in the full time counties are seeing 75 per cent of the case of typhoid fever occurring among the negroes while the physicians in the part time counties are seeing about 37 per cent of the cases among that race. Apparently the full time health departments have been to some extent instrumental in getting these cases into the hands of the general practitioner of medicine. With these brief explanations these tables will be allowed to speak for themselves.

From the foregoing facts it is felt that it is only reasonable to conclude that the State Board of Health is pursuing the right course in its enthusiastic advocacy of full time local health service. However, lest this association should assume a self-satisfied attitude towards these recent accomplishment of the Board of Health and develop a feeling of complacency, attention is called to the fact that 52 per cent of the people of this state are not now enjoying the advantages of reasonably adequate local health service. Mention is here made of the fact that the negroes in the full time counties are provided with better health protection than are the white people in the part time counties. There are at least one-half million school children in this state who will need next year the regular medical examination, many thousands of whom have devitalizing handicaps which the skill of the members of this Association could and would relieve if the opportunity were afforded. At least one hundred thousand of these children should have toxin-antitoxin to protect them against diphtheria. The fifty thousand babies born last year should have this protective agent administered this year. The use of the open back privy is entirely too common in this state for the physical comfort and well being of the general public. The venereal disease problem demands the best thought and most serious consideration of the medical profession if the enormous wastage of human life and efficiency is to be stopped. Last year more than 5500 people died in this state from the so-called degenerative diseases. In dealing with this class of diseases the medical profession is afforded a wonderful opportunity for service. In fact the mere surface of the public health problems in this state is at present being scratched. The lay people of this state are looking to the medical profession for constructive leadership in the solution of all of these intricate problems. Certainly the members of this Association can be de-

pended upon to be true to the trust reposed in them by the lay public and to remain loyal to the ideals and principles of those pioneers of the profession who so effectively blazed the public health trail in this state.

DISCUSSION.

Dr. D. J. Williams, (Gulfport): It has not been customary to discuss the Chairman's address, but I felt that in the presentation of this paper Dr. Applewhite has outrun himself. Since I have known you, sir, I have not known you to present a more excellent piece of work, and I am going to deviate from the usual run of the Association and permit the members here to make a few comments if they see fit.

In doing so, you are not to take issue with the Doctor whose word is final is this instance. I don't want to create any embarrassment by your being slow, but the Doctor has brought out one point particularly and I think it is well emphasized. He referred particularly to the skill of the physicians in the counties in which there are all-time health departments.

I want to say to the doctors in the state of Mississippi that I believe no single factor has been so instrumental in making better doctors of Mississippi doctors than has the all-time health department. I have made this statement before, but I am particularly pleased to repeat it. I believe the standard of medicine in Harrison County within the five years of the all-time health department has been raised not less than thirty-three and one-third per cent. In the fifteen years that we have been operating here, I am confident that the standard of medicine has been increased one hundred per cent, and I don't know where the end will come. I don't believe there is anything that has added to the decreased death rates more than the effective reporting of cases and the effective, sensible treatment that has been administered by the doctors of our county. I believe that will go far toward curing many of the ills that are complained of, and particularly those who feel that some legislation should be passed regulating osteopathy, chiropractics, and God knows what all. If you render the proper service, put it within the reach of the people, then we will succeed and not be so much concerned about the irregular practitioners.

## CHANCRE.*

JOHN G. PRATT, M. D.,

NEW ORLEANS.

In choosing the title of this paper I did it with the idea of first, narrowing the field of syphilis to one stage of the disease; second, to call attention to the fact that it is in this stage that the disease can be easily diagnosed, and third, that early diagnosis means that the treatment is much shorter and more efficacious.

As you all know, the disease is an old malady dating back to the return of Columbus following his discovery of this continent. Much has been written about the disease and many fine descriptions have been given us of the various clinical manifestations of the disease by the older clinicians. To my way of thinking there is no more complete clinical description of the disease than that which was written by Hutchinson.

In this little book he described with minute details the various types of chancre. Anyone reading his description could easily diagnose the chancre, but unfortunately there would be a great loss of time in waiting for the sore to take on its particular chancre characteristics. There are also many sores which do not run true to type. Some are very atypical and, from a clinical standpoint, would never be diagnosed as the initial lesion of syphilis. This, of course, would mean that a great many lesions would be dismissed, and that the diagnosis of syphilis would have to be made on the later symptoms of the disease.

The typical chancres which Keyes, in his book on syphilis, classified into three classes are: first, the eroded chancre, the color of which is that of raw meat with little petechial spots, the surface is usually flat, the induration is circumscribed rounded and thin and very slightly raised above the surface of the integument. It is a fairly

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clean looking sore and emits a slight seropurulent discharge. Second, the ulcerated chancre or Hunterian chancre is one in which the sore is elevated, the induration is marked and surmounting the induration is a distinct ulceration which is more or less necrotic in appearance due to actual necrosis of the inner part of the chancre. The surface of the ulcer is dirty grayish in color and one can see tissue which is sloughing. When this is scraped away the under surface bleeds quite easily. The indurated papule is Keyes' third type of chancre. It is much rarer than the other two types and occurs where the integument is dense and thick. The induration therefore remains small, of a dark red color and looks like a papule usually covered by a scab. The lesion resembles that of scabies.

There is another type of chancre which is classified by some authors as the parchment chancre. I personally have seen only three or four of this type and all of them have been on negroes, and all have been on the shaft of the penis or on the scrotum. They are usually large, ranging in size of a five cent piece to larger than a quarter, are very clean in appearance with absolutely no ulceration or erosion, very little, if any exudate and when felt between the fingers give one the impression of being of the texture of parchment. The surface of this lesion is absolutely glistening in appearance. Of late there has come into this list the so-called button chancre which I believe is nothing but the Hunterian chancre. It usually occurs on the shaft of the penis or on the scrotum. The induration is most marked as compared to the small ulcerated area at its dome and on its healing leaves a marked induration of the tissue which feels like a button under the skin.

The time which it takes a chancre to develop its characteristics varies from one week to three weeks. They all begin alike as a very small red area which soon loses its superficial skin and looks for all the world like the skin had been brushed off with a piece of fine emery cloth leaving a more or less clean brush burn.

It is common to hear a patient tell you that they just thought that their clothes had rubbed the skin off so they paid no attention to it or that they had been subject to herpes and that they thought that it was just another crop. I have seen patients who have told me that they went to the doctor who said it was nothing but herpes and touched the sore with silver nitrate. So in the very earliest stages the sore is most innocent in appearance and may easily mislead one into medicating it and destroying an early means of making a diagnosis.

Chancres may be multiple as well as single. The mere fact that there is more than one sore present does not preclude that the case is one of syphilis. I have seen a man with as many as 19 sores on his penis and scrotum, six of which I scraped at various places and found them loaded with spirochetes, and, according to the story of the patient, these sores all appeared within three or four days of each other and that there had only been one exposure and that one was the very first time in life that he had ever had an intercourse. It is fairly common to see two or three initial lesions but I must say that the single chancre is by far the most common.

The location of the chancre can be on any part of the body as well as on the genitals. It must be remembered that the chancre appears at the point at which the innoculation takes place. We see them, not only on the penis, but on the scrotum, in the suprapublic area, on the abdominal wall, on the thighs, on the buttocks, around the anus, on the lips, tongue, tonsils, on the cheeks and on the neck, even the nose and eyebrows.

Within our profession there are quite a number of digital infections, and if I may pause here to state I have seen about eight of these cases, which have gone without diagnosis until the secondary manifesta-

tions of this disease made their appearance. It is a rather poor commentary on the profession when a man will watch a digital sore grow and grow and keep medicating it with salve, lotions and what not and never suspect that it is syphilis until it breaks out in a full secondaries. It seems to me that in the practice of medicine we are all exposed at times, to inoculation by this disease, that the moment a digital sore appears on our hands, we should become immediately suspicious of syphilis and would have it scraped to rule out this malady.

The incubation period of the initial sore of syphilis varies considerably and I would place it between 10 days and three months, the average being about twenty-eight days. I have seen both of the limits which I mentioned. There is also a group in which no definite incubation period can be ascertained, that is, those who are being exposed two or three times a week.

Now what happens to the patient between the time of inoculation and the time the chancre makes its appearance? Surely these most motile spirochetes do not remain only at the site of inoculation. They make their way into the lymphatics and are eventually carried to the blood streams and are borne to every part of the body. This fact was proven by Neisser, in his experiments in Java, on the chimpanzee. He definitely proved that in about ten days after the animals were inoculated, that the spirochetes could be definitely proven in every organ of the body. So we see from this that long before the average chancre makes its appearance that the disease is already a systematic one. We might now ask ourselves why it is that there is not a more rapid reaction on the part of the host to the invasion, all I can say is that the disease is one of great chronicity and that the reaction comes very slowly. This is manifested by the usual duration of the sore of from four to six weeks. I may here state that the sero reaction is very slow and that the Wassermann recation very rarely becomes positive before the third week and quite often is not positive until the sixth week of the chancre.

From the above facts, I wish to emphasize that the early diagnosis of a chancre or syphilis cannot be made on the incubation period, the clinical aspects of the sore or on the serum reaction of the blood so that we have to resort to the microscope using the dark field or the india ink or one of the more complicated staining reactions to find the spirochetes in the sore. For my part, I prefer the darkfield first and then the indian ink methods. Dr. Hume and I ran for several years the indian ink and the dark fields methods and at the end of this time there was only about a 2 per cent deficiency on the part of the india ink method.

In the very early chancres, spirochetes can be demonstrated with the greatest of ease but as they become older there is a decided diminution of the number of organism present, also a sore that has been medicated contains very few and in large number of cases no organisms can be demonstrated. Therefore, I may state that as soon as a case presents itself with a sore, that the sore should be scraped and a determined effort made to demonstrate the spirochetes in the scrapings before any medication is applied to the lesion. Should the sore have been medicated before it is presented, then several scrapings should be made at intervals to determine whether or not the case is syphilis. In other words, every effort ought to be made either to prove or disprove it to be a chancre. Once a sore is proven not to be syphilis, then local applications are in order. Should it be proven to be a chancre, then systematic treatment for syphilis will care for the local lesion.

For practical purposes of treatment we may divide the chancre stage of syphilis into two divisions: the sero-negative period and the sero-positive period. The sero-negative period, to make it sharply defined for practical reasons, is that period from

the first appearance of the sore to the end of the third week when the Wassermann becomes positive. Of course, this period varies both over and under the third week, but I choose the third week because it fits the average case. The sero-positive stage is that period after the third week or after the Wassermann becomes positive. Again, for practical reason, we may divide the sero-negative stage into the first ten days and the second ten day period. I firmly believe that if a chancre is diagnosed in the first ten day period and treatment instituted at once, that the treatment necessary to bring about a complete and early cure will be shorter than that needed in the second ten day period. So it behooves us to make the diagnosis as early in the disease as possible. The earlier the treatment is started the shorter will be the course of treatment, the surer the cure and the less will be the financial strain upon the patient.

When salvarsan was first brought out by Erlich in 1911, it was thought that one injection of the drug would cure any case of syphilis. It was in this period that one or two cases were treated at our office for a very early chancre, one or two days old, and later when it was discovered that a cure was not obtained by one injection these patients were sent for and kept under observation for several years watching for clinical and serological symptoms of the disease. Neither of them ever showed positive in any way whatever. I do not mean to advocate only one injection of the arsenicals as a cure in all cases of early chancre, but I believe that a six to ten months course of treatment will handle the great majority of the chancres in the first ten day period. A year to sixteen months should handle those in the second ten day period.

In the sero-positive stages of the disease anywhere from eighteen months to five years of treatment would be necessary.

In my final plea for the early diagnosis and treatment of the chancre, I wish to state that in private practice the number of patients that stick to treatment until they are discharged as cured by the doctor amounts to about 15 per cent, and in charity practice about 2 per cent. It might be noteworthy to state here that up until 1917 that twenty-nine physicians were seen with syphilis in our office and out of these twenty-nine case that only two cases were discharged as cured, the others quit.

I wish also to impress upon you that we must try to make the patient understand that a most innocent appearing sore, which contains the spirochetes, is syphilis and that he must be treated over a length of time or suffer at some later date, the consequences.

A very eminent neurologist told me the other day that those cases which disappeared from the doctors care were potentially his bread and meat.

In conclusion, I wish to summarize the salient facts:

1. The earliest and surest way of diagnosing a chancre is by the use of the microscope, otherwise valuable time will be lost in instituting treatment.

2. All lesions on the genitals should be considered possible chancres until proved otherwise.

3. Lesions which have been previously medicated should be scraped and re-scraped until there is no doubt of the diagnosis.

4. Early and adequate treatment of chancre means early cure of syphilis.

5. The most important stage of syphilis from the patient's standpoint is the chancre.

DISCUSSION.

Dr. Gordon (New Orleans): I want to emphasize as strongly as I can the point which Dr. Pratt made, that nobody can look at any sore on or around the genitals and tell anything at all about it. Dr. Johns, who does my dark field work, will bear me out that I send him everything from herpes to staphylococcus infections of the penis. I scrape promptly any and

all sores around the genitals. I differ with Dr. Pratt in the amount of treatment that will cure syphilis. I don't think any patient should receive only a year's treatment. I treat all the cases I can keep my hands on for two to three years, and do not discharge them before that time. The type of treatment, I do not propose to consider, but I think that we should have at least two years of negative blood Wassermans and that the spinal fluid should be negative for a year or over. Let me say again that if you follow the plan of scraping every sore around the penis, you will do a great deal of good for mankind.

Dr. Foster M. Johns (New Orleans): I want to make a few remarks on this question from the standpoint of the laboratory. Even in this year, 1929, I am frank to admit that fully 30 per cent of the cases sent to me for examination have been treated for from one to three weeks before I see them. My own opinion is that it is criminal negligence for any man to treat any sore on the exposed area anywhere in the body without making a definite diagnosis of it. The only time that we can make definite diagnosis of syphilis is in the chancre stage, for it is only then that we can see the spirochetes. I repeat, therefore, that in this day and time it is criminal negligence to treat any sore without making the proper diagnosis first.

My experience with extra-genital is somewhat more striking than Dr. Pratt's, for I have seen about sixty in doctors, dentists, nurses and other individuals. Among them there are cases which have been treated for from one to six months without any suspicion of syphilis. I would extend his requirement of the laboratory examination of sores about the genitals to all chronic sores. In no other way can we be certain of our diagnosis. It is folly to wait for the secondaries to appear; they do not always appear. Just within the last week I made a spinal puncture on a prominent physician who had a venereal infection forty years ago. Nothing else happened until tabes appeared. I would say again that any kind of long-standing, indurated sore, any sore which does not heal promptly, should be submitted to laboratory examination, for in no other way can syphilis either be diagnosed or be eliminated.

Dr. H. J. Lindner (New Orleans): Dr. Pratt has chosen to discuss for us a very small but a very important term. The accurate and early diagnosis of syphilis cannot be too strongly stressed. The average general practitioner cannot appreciate this point as we do, who have seen these unfortunate individuals come and go in the clinics of Charity Hospital. All venereal or genital sores should be scraped, and should be scraped repeatedly, for a single examination may fail to reveal the spirochete because of previous treatment or because of faulty technique. We follow this plan in our clinic and we teach it to our students, indeed, we train them to make their examinations sometimes several times a week, and to continue them for several weeks when necessary to reach a diagnosis. A supposedly venereal lesion should never be treated until there is some definite conclusion as to the diagnosis. As Dr. Pratt and I were both brought up in the school of Dr. Hume, we are in accord on most points, but I rather disagree with his as to treatment. I have been associated with the urological clinic at Charity Hospital for the last sixteen years, and I have seen many patients come and go and come back to us. My experience there has taught me many things, and has given me at least one rule for my office practice, not to discontinue treatment for at least eighteen months, no matter how early a diagnosis was made. Indeed, if I ever had the misfortune to be infected myself, I should be unwilling to discontinue treatment for at least three years, no matter how early the diagnosis was made. Early diagnosis and early intensive and continued treatment are the only solutions in the problem of the treatment of syphilis.

Dr. A. Mattes (New Orleans): This subject is one which to my mind occupies a very important position on our program. The essayist has called to our attention the danger we are in of the actual syphilization of the human race. If the specialists of our profession as well as the general practitioners were not so negligent in this matter, we would see less syphilis, the neurologist would make less money, and the general public would be better off. A good deal has been said about early diagnosis, but it has not been sufficiently emphasized that that diagnosis can be made only by laboratory methods. No man has a right to treat any ulceration, much less one which is possibly syphilitic, without being very sure of what he is doing. Only a small percentage, a very small percentage of our patients come to us with well defined lesions, in which a positive diagnosis can be made without examination. All cases should be repeatedly examined, and if they are simple affairs, they will heal of themselves during the period of examination. Any physician who endeavors to treat such conditions should be prepared to examine them microscopically, whereas the average man either lacks these facilities or will not take the time to use them, and just so long as this situation continues, just so long will syphilis continue to be the curse of the race. I do not think it makes much difference in the treatment whether you see the patient on the first day or many days later. It has been definiely proven by many observers

that the treatment of syphilis in the Wassermann-negative stage is dependent upon what you put into the patient and not what the patient does. The important thing is to keep up the patient's nutrition and to treat him intensively and at length. Short courses of treatment get you nowhere; the patient invariably returns to you with fresh trouble. I have in mind one individual who was supposed to be adequately treated, whose Wasserman was repeatedly negative, and who had been permitted to marry. Now there are four luetic children in that family, though there can be no visible lesion anywhere. A year's treatment is not enough, though there can be no hard and fast rule set down as to the duration of treatment. But we can say that it is folly to treat a patient for a few months and then wait for three to six months, because usually all we wait for is for the Wasserman to come back positive. Intermittent treatment of syphilis is just about as fallacious as the intermittent treatment of malaria was. We treat malaria with quinine every day now, not every third day, and we treat amebic dysentery continuously, not during an attack. In the same way, the only cure for syphilis is to treat it adequately and continuously, over long periods of time.

Captain O. C. Wenger, M. D. (Hot Springs): One of the important things we have to teach the general practioner is that the average chancre does not resemble the text book picture. It all depends upon when the lesion is first seen by the physician, and whether local applications as caustics have been applied. Any lesion may prove to be a chancre, irrespective of its size or shape. We often see student physicians in the Hot Springs clinic examining by palpation to see whether they are "hard" or "soft". A chancre may be hard or soft, depending again upon the age of the lesion. The only examination one can depend upon is the darkfield, and this, if negative, by no means eliminates the diagnosis of early syphilis.

We have a well trained laboratory man, with years of experience in darkfield work, yet we find the possibility of error something like 30 per cent. This may be due to previous local treatment, or a few doses of neo. It is exceedingly dangerous to make a diagnosis of chancroid even when the darkfield is negative. One never knows. The longer I work with syphilis the less I am willing to make a diagnosis of chancroid. We see hundreds of cases in the course of a year of late manifestations of the disease who were previously diagnosed as cases of chancroid. There was some excuse for this error years ago, before the days of darkfields.

From a public health standpoint and in clinic practice, where patients cannot be placed under observation for six months or a year, I think it is much safer even in the face of negative reports to treat these clinic patients as early syphilis. If the lesion is really chancroid we have done no harm, but on the other hand if the lesion is luetic we have done something towards the control of this disease. Chancroid is not a public health problem. Syphilis is. The former is comparatively rare, even in the big clinics, and the more expert we become in diagnostic methods, especially in darkfield examination, the less chancroid we will see. It is all right to speak of waiting for secondaries to appear, or a positive Wassermann, but so many of these patients that come under our notice have been given just enough neo-arsphenamine to prevent the appearance of secondaries, and the patient frequently labors under a false security for many years until later symptoms develop.

As to the question how long are we to treat patients with syphilis, there seems to be no agreement on the subject. Stokes and Schamberg, I believe, recommend three years of treatment. In my opinion the man or woman who has once been infected with syphilis must live the rest of his or her life in its shadow. It may never recur, but one never knows when it will reappear, and constant observation, with frequent physical examinations, is the only safeguard.

Dr. John Pratt (closing): I agree with Captain Wenger that the diagnosis of chancroid is a very difficult one to make. We must be careful in making it, and extremely careful after we have made it, for without observation of the patient we cannot be sure that we have not overlooked a case of syphilis. From the public health standpoint he is correct in what he says, but I doubt if we private practitioners could follow such a course; we get fees for our work, and we would certainly be accused of commercializing our profession and gouging our patients. The duration of treatment is one of the most debated questions in syphilology today. I think it better to keep the patient under treatment for a specific length of time; the average one will co-operate more readily if he has some goal to look forward to and does not believe that he will have to undergo treatment for the rest of his life. Scaring patients to death will result in a larger number of desertions than we have now. I see Captain Wenger's point of view; I served in the Army, where the principles of the Public Health Service were acted upon, and we treated our patients as long as they stayed in the ranks, though I don't know what happened to them after discharge. If of the 29 doctors to whom I referred only 2 continued their treatment over a period of 2 or 3 years, the rest deserting within 6 months, what are you to expect of the average lay person?

# SPLANCHNIC ANALGESIA.*

EMMETT L. IRWIN, M. D.,

NEW ORLEANS.

Splanchnic analgesia is a form of regional anesthesia directed at the blocking of the splanchnic nerves. This is accomplished by the introduction of a suitable anesthetic solution into the retro-peritoneal space in the region of the splanchnic nerves and semilunar ganglia—thus bathing these structures in the anesthetic solution (0.5 per cent procain or novocain). This may be accomplished by either the anterior or posterior routes.

This alone is not sufficient for such produces analgesia only of those structures under splanchnic control. It is then necessary to employ either infiltration or block analgesia for opening the abdomen. The latter method is preferable and is effected by injections of 10 c.c. of 5 per cent solution within the rectus sheaths at the lateral edge between the serrations of the muscle. The number of injections is determined by the desired length of the incision. It may now be necessary to inject the peritoneum at the point of incision. Next a few c.c. of solution are injected into the peritoneum about four centimeters distance from the incision.

The insensibility of the visceral peritoneum has long been recognized but the parietal peritoneum is highly sensitive. One can handle, incise, tear, or burn a viscus without pain, but manipulation or pulling on the organ is associated with great discomfort and pain. The relative inaccessible location of the upper abdominal organs renders it difficult to execute surgical interference without manipulation and traction, thus producing pain and rendering it impossible to accomplish the desired result without some form of anesthesia.

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In 1913 Kappis, through animal experimentation, gave to the profession the solution of the problem, and added a magnificent contribution to surgery of the upper abdomen. He learned that section of the splanchnic nerves caused loss of pain sensation in the stomach, spleen, bile ducts, and upper portion of the small intestines. During this same year he successfully injected for anesthetic purposes the splanchnics as they enter the semilunar ganglia. His results aroused much interest and stimulated suggestions for additional methods of producing splanchnic analgesia.

The great splanchnic nerve is formed on the lateral side of the eleventh dorsal vertebrae by roots from the middle thoracic sympathetic ganglia, receiving fibers from the fifth to tenth thoracic nerves by way of communicating rami. It passes through the crus of the diaphragm into the abdomen to join the corresponding semilunar ganglion. The lesser splanchnic nerve arises from the lower thoracic sympathetic ganglia, receiving branches from the tenth to twelfth dorsal nerves and enters the abdomen in company with and lateral to the great splanchnic nerve, where it, too, joins the corresponding semilunar ganglion.

The semilunar ganglia are two in number, situated retro-peritoneally one to either side of the median line and resting opposite the first lumbar vertebra immediately above the pancreas. They are partly covered by the vena cava on the right and pancreas on the left.

Four methods have been advocated for accomplishing the injection of the splanchnics: Two by the anterior route (Wendling and Braun); two by the posterior route (Roussiel and Kappis). Wendling, after blocking the anterior abdominal wall, blindly thrusts a long needle into the epigastrium one centimeter below and one-half centimeter to the left of the ensiform, perpendicular to the body, passing through the liver and lesser omentum, hoping to

reach the ventral surface of the first lumbar vertebra, where he injects 50 to 80 c.c. of 1 per cent novocain. This method is mentioned only to be condemned and forgotten.

Braun's procedure is far more practical, making the injection after laparotomy. The liver is gently elevated and the stomach retracted downward to the left. The left hand is passed above the lesser gastric curvature, pressing the index or middle finger into the space between the aorta on the left and vena cava on the right, gaining contact with the anterior surface of the first lumbar vertebra. The aorta, easily identified by its forceful pulsations, is pushed to the left. The vena cava offers little resistance and collapses beneath the finger, while the aorta offers greater resistance, and may not be so easily punctured. The especially designed needle is passed along the dorsum and radial side of the finger until its tip is reached, when the bluntly beveled point is introduced with a quick jab into the retro-peritoneal space, striking the body of the first lumbar vertebra. Here the injection is made of 40 to 70 c.c. of ½ per cent procain solution. Before making the injection aspiration should be done to ascertain whether or not blood is obtained, and, if so, the procedure should be abandoned.

The posterior method has been championed by Kappis, who injects the splanchnics beneath the diaphragm, using a single point of puncture along the lower edge of the twelfth rib, 7 cm. lateral to the median plane. This point is generally opposite the spinous process of the first lumber vertebrae. Here an intradermal wheal is raised and with patient in the lateral position a 12 cm., 18 gauge bluntly beveled needle is introduced until it strikes the twelfth rib, when it is passed below this structure, slightly inclined inward, forward, and upward toward the vertebra so as to make a 30° angle with the sagittal plane. The needle point reaches the vertebra at the junction of its lateral and ventral surfaces in close association with the splanchnic nerves. The needle is now introduced upward to a point 3 cm. above the point of first injection, where 20 c.c. is again deposited, and lastly an additional 10 c.c. is introduced 2 cm. below first injection. This makes three injections through the point of puncture; similar procedure on the opposite side. This procedure endeavors to deposit the anesthetic solution into the retro-peritoneal space, opposite the ventro-lateral surface of the upper, middle, and lower portions of the first lumbar vertebra. The author has found that through a single puncture one injection of 30 to 40 c.c. of the anesthetic solution at either one of the above locations is sufficient to effect splanchnic analgesia.

Marc Roussiel claims splanchnic analgesia is accomplished by paravertebral injection of the tenth, eleventh and twelfth dorsal nerves, depositing 10 c.c. of 1 per cent novocain at each point. The injection at the twelfth is made at a deeper level than the others and the author believes it is here that he accomplishes the block.

Before entering upon the task of surgical interference with local anesthesia, it is important to familiarize the subject with the sensations to be experienced. As the individual will be conscious of the touch sensation, he should be made to understand that there should be no pain; especially is this true of foreigners, mixed breeds, and those highly apprehensive of the procedure. After the operation is begun and particularly after the abdomen is opened, the surgeon must be keenly alert to note any change in the patient's mental attitude, and, above all, he must handle the tissues with care. The anterior method of Braun is associated with considerable discomfort when the hand is passed beneath the liver, pushing aside the aorta to reach the surface of the first lumbar vertebra. This produces air hunger and feels as though the heart itself is grasped in the hand, but if this is previously explained to the patient there is no objection. Immediately

the injection is made there is instant relief and comfort. This procedure is under control of the sense of touch, and frequently the sight. However, it is not free from danger in the hands of the inexperienced and should be practiced on the cadaver before employment in the living. Its dangers are injury to the aorta, vena cava, omental vessels, and possibility of intravenous injection. With little care neither of these should occur. Braun uses the median incision for laparotomy, but the rectus incisions may just as easily be employed.

This form of analgesia has now been employed by the author for four years and it has been thoroughly satisfactory for all surgical procedures in the upper abdomen, accompanied by complete absence of pain, perfect relaxation and absence of intra-abdominal pressure—evidenced by the lack of presence of the viscera in the wound. There may be a fall in blood of 25 to 30 mm. with associated symptoms, but a preliminary injection of ephedrin sulphate readily compensates for this. The patients occasionally experience a feeling of nausea and may vomit—this should only momentarily interfere with the progress of operation. It can be employed in any individual regardless of age, having been used by the writer in persons five weeks of age (injecting 5 c.c.).

The anterior method, in cases where there are matted adhesions filling the upper abdomen, may be given with difficulty or its use may be impossible. It can only be administered after laparotomy.

The posterior method before laparotomy, may be employed regardless of the condition of abdominal viscera—or type of incision. Its use will enable exploration of the upper abdomen when incisions other than the epigastric type are used. It is regarded as the more safe and most generally applicable type of injection.

CONCLUSIONS.

1. Splanchnic analgesia marks a forward step in surgery of the upper abdomen.

2. Its object is to introduce into the retro-peritoneal space opposite the first lumbar vertebra sufficient anesthetic solution to saturate the splanchnic nerves and semi-lunar ganglia.

3. It is thoroughly efficacious for all operations upon the stomach, duodenum, spleen, pancreas, gall-bladder and its ducts, the upper third of the small intestines, and transverse colon. Its induction is simple but not without some danger.

4. The analgesia is absolute, relaxation is complete, and the intra-abdominal pressure is negative.

5. It is dependable and its duration is from two to three hours.

6. The post-operative course presents less alarming symptoms than with general anesthetics. There is rarely nausea, vomiting or pain, or the need for narcotics. Gaseous distention is absent or negligible.

7. The method of Wendling is dangerous and should never be used. The procedure of Roussiel is unnecessary. Braun's anterior injection after laparotomy is practical but its use is limited. The modified Kappis procedure is the most generally applicable and the simplest of application.

8. Splanchnic analgesia is most highly recommended for upper abdominal surgery.

DISCUSSION.

Dr. Alton Ochsner: I want to emphasize a point Dr. Irwin made concerning the feasibility of splanchnic analgesia, especially in upper abdominal work; there is no doubt that one can with safety employ this form of anesthesia. The anesthesia, however, is not without danger; cases have been reported of injuries to lung, inserting the needle in the vena cava and even tearing the vena cava. These mishaps can, however, be avoided if a little care is taken.

I prefer the method of Kappis because it is possible to have anesthesia before the patient is operated on. I never have any difficulty in getting perfect anesthesia and I find that the in-

dividuals I operate on prefer this method that when it is given by the anterior route. We have noticed in about 200 cases (mostly posterior route) a fall in blood pressure of about 20 millimeters mercury. Aside from this there have been no other bad symptoms or signs except one patient who developed a complete anesthe... of the lower extremities—at least, he said he was anesthetic. Fortunately, at the termination of operation, he could move his extremities. This is the only case of the kind I have ever seen and I am at a loss to know what happened.

I feel that there are many indications for this form of anesthesia and especially with patients who are bad risks that splanchnic offers a great deal.

Dr. Emile Bloch: I am rising merely to make a few comments, for anything I could say in discussing this subject is to be found in Braun's and Finsterer's books.

My experience with splanchnic analgesia covers a period of four years, during which time I have employed it about fifty times. Dr. Irwin says this type of analgesia can be used successfully in any case, irrespective of age, but in my opinion it is ideal for the elderly or middle-aged individual; on a young person it does not work so well. I have been unfortunate in the posterior route, having failed in all I have tried. I now use the anterior route exclusively.

An objectionable feature of splanchnic analgesia is where you have to explore the lower abdomen. Some men believe that appendicitis has something to do with gastro-duodenal ulcers. If you use the upper median incision you are going to have difficulty in exploring the lower abdomen through that incision. The splanchnic nerves come from the lower dorsal plexus; it is therefore an ideal anesthetic for upper, but not for lower abdominal work as far as the cecum, appendix, etc.

Dr. M. J. Gelpi: Dr, Irwin does his splanchnic work so very well that I was highly complimented on his asking me to discuss his paper. I met him on the street a couple of days ago and asked him what he thought I should say on the subject and he said: "Tell them the truth." It is a pity that all authors and essayists do not feel the same way about this. So I will try and tell you the truth as regards splanchnic.

First of all, I must confess a debt of gratitude to Finsterer for opening my eyes to the possibilities of splanchnic. Before he came to New Orleans and demonstrated its value so beautifully to us a few years ago, I had always looked upon it as a "tour de force," a sort of trick, that only a few could accomplish. I am convinced that splanchnic analgesia has a distinct value for upper abdominal work, particularly for depleted patients from any cause, such as carcinomatous conditions; conditions with coincidental tuberculosis; or where they have suffered from hemorrhage, as from ulcer. I believe that many times the use of splanchnic will permit you to do work in the upper abdomen with safety where you would hesitate to do it with a general anesthetic. And speaking of the perfect relaxtion obtained with ethylene, mentioned by the discussants of the preceding paper, I have never seen such perfect and complete relaxtion as you get with splanchnic when supplemented with blocking of the abdominal wall. Splanchnic lends itself particularly to gastric surgery and upper abdominal surgery in general, and although in gall-bladder work it is perfectly feasible, it is less satisfactory here than in gastric surgery. In gall-bladder work you must be particular to anesthetize the round ligament of the liver. We have been able to perform successfully and with perfect satisfaction gastroenterostomies, cholecystectomies, resections of intestines, explorations and appendectomies. For pelvic work, of course, supplementary anesthesia with local or general is necessary; if local is used, the supplementary anesthetization is obtained by blocking the broad ligaments and the region of the vaginal vault particularly and the lumbar plexus.

I am trying to develop a technic in removing the appendix which will permit of exploraton of the gall-bladder and duodenal regions. This is done by doing posterior splanchnic on the right side, using a somewhat larger quantity of anesthetic material than is used when both sides are injected posteriorly by supplementing this by blocking the anterior wall on the right side in the area lying between the lower margin of the ribs and the anterior superior spine. This anesthetizes the entire abdominal wall on the right side and if supplementary injection is made in the peritoneum extending from the upper angle of the incision to the round ligament of the liver, the hand can be passed along this area in order to explore without causing any undue disturbance.

My personal preference, where this is possible, is for the anterior route, although Dr, Irwin has persuaded me of the entire feasibility of the posterior route. In the use of anterior splanchnic, however, there are certain technical points to which I wish to call attention. I find, in following Finsterer's technic, grasping the stomach with the right hand, there seems to be a certain degree of pain elicited. This can be avoided by first injecting the mesentery of the stomach with novocaine. Many patients object to this slight pull on the mesentery and it is a nice little trick, after opening your incision, to inject the anesthetic in the mesentery of the stomach before putting

it on tension. Another thing: I feel that the safety of the anterior injection is increased by using the Dunham needle, which is so constructed that the portion of the needle that goes behind the peritoneum is in a sheath and you find the solar plexus with the end of this sheath and only insert the needle after the localization with the sheath, which is blunt and therefore harmless.

One disadvantage in splanchnic, as in all local anesthetics, is the absence of what Dr. Matas calls "the luxury of going to sleep." I feel that analgesia with local is not perfect if your patient has to grunt and groan and be there for an hour or more in fear and trepidation, so I try to obviate that by adopting the suggestion of Cooper and Gwathmey, giving the patient an hour before operation 10 grs. of chloretone by mouth, or in cases where operation has to be done on the stomach, by rectum, and at the same time, give ⅛gr. of morphin in 2 c.c. of magnesium sulphate (50 per cent) with novocain. We repeat the injection of morphin and magnesium sulphate in 15 minutes, and in cases of very nervous or very large individuals we repeat the hypodermic for the third time after a 15 minute interval. In this way the great apprehension is done away with. We feel so kindly toward the method that we have adopted this routine as a preliminary for even our ether and ethylene cases. It certainly requires less anesthetic and the patient goes under in a much better mood than without it.

Conclusions: 1. While, in my opinion, splanchnic is not applicable as a routine unless you have perfect team work, it certainly has a definite field of usefulness and will permit you to do work that you will hesitate to do without.

2. I think that any man who does abdominal surgery should be equipped so as to be able to do both the anterior and posterior splanchnic.

Dr. Emmett L. Irwin (closing): I wish first to thank Dr. Gelpi for his splendid discussion, but I can not agree that the anterior method is preferable. This procedure is valuable and has its uses. One should get analgesia one hundred per cent with the posterior route, while there are certain conditions which render the anterior technic impossible. By way of example, picture an old gall-bladder condition accompanied by a peri-cholecystitis, with all the upper abdominal viscera matted together in one conglomerate mass of adhesions. Here it would be useless to attempt to introduce the finger into the proper position to effect anterior splanchnic; however, there would be no hindrance to accomplishing splanchnic analgesia by the posterior route.

It has been stated that anterior splanchnic can only be performed through a median incision, but it has been possible to successfully effect this type of analgesia through other incisions.

Referring to Dr. Bloch's statement that the ideal subject for splanchnic is the elderly, or middle-aged, it has been found to be equally satisfactory in subjects of all ages.

In closing, I wish to kindly thank Drs. Ochsner and Landry, and others, for their remarks.

## ACUTE PELVIC INFECTIONS IN THE FEMALE.*

A. G. PAYNE, M. D.

GREENVILLE, MISS.

There is no doubt that pelvic infection is one of the most important subjects confronting the medical profession at the present time. The very diversity of opinion that has been expressed in recent publications seems to show that it is far from being settled.

The mere fact that the etiology of such infections embraces so many causative factors, should cause one to look for and treat those conditions which will lessen the disease in question, by adequate treatment or operative procedure.

The three main causative factors of pelvic infection are: Neiserian, septic abortion and cervicitis. All of these conditions are so amenable to treatment that we should, year by year, see less pelvic infection.

Gonorrhea of the external genitals is, quite often, one of the most obstinate conditions to cure and often necessitates more zeal on the part of the physician than the average man cares to show and more fortitude, perseverence and abstinence than many women with such a condition will endure. Thus it is that the local infection, inadequately treated, goes into the cervix and so into the pelvis.

*Read before the Section on Surgery, at the Sixty-Second Annual Meeting of the Mississippi State Medical Association, Gulfport, May 15, 1929.

The subject of abortion, in all of its phases, is most important to the woman who has one. She should be treated conservatively to that end, that no infection will go beyond the uterus. This is one of the most meticulous questions before the profession today and one that is quite unsettled as to the best mode of treatment. I think all will agree that in incomplete abortion the uterus should be cleaned out with sponge forceps and irrigated with a dull curette. In septic abortion, not knowing what organism may have been introduced into and through the uterus and how much damage may have been done to the adnexa and parametrial tissue, there is but one condition in which one is justified in entering the uterus and that is hemorrhage.

Cervicitis is an outstanding causative factor of pelvic infection in all ages. Virgins harbour such conditions more often than we imagine and carry the condition for years on account of timidity. How many are there of us who examine the cervix one month after abortion or labor to ascertain its condition? Many cases of mild fever following labor are from an old cervicitis with latent infection. The question of treatment of cervicitis and endocervicitis is quite a problem to both patient and physician. They assume much the same role as in the case of Neiserian infection when treated by the usual methods in vogue; that of local applications, tampons and douches.

A great many causes of pelvic infections involving the parametrium and adnexa are caused by office treatments, which in the main, do not effect the desired results no matter how strenuously and persistently carried out. Some form of cautery treatment is, really, the only rational treatment for erosions, slight lacerations during the childbearing period, cystic cervices and endocervicitis which do not require more formidable measures to effect a cure.

We have learned a great deal about pelvic infection that we did not know twenty years ago when Simpson revolutionized the treatment of tubal disease. Prior to that time its management had been purely surgical. Operation was done as soon as a diagnosis was made and usually a complete ablation was the result. How many of us older men are not guilty? And yet the pendulum, at the present, is not swinging as it should to the conservative side of treatment. It is high time that we take stock of our surgery in such conditions and by careful follow-up records learn how much of it is more than useless and then, if possible, substitute some simpler methods that will yield better results.

There is no field in the realm of medicine in which the above is more applicable than in the acute infections of the female pelvis. There is no region in the human body in which so much destruction can be wrought by untimely operation, when no operation can be done at the time of acute inflammatory process without producing great morbidity and probably death. When presented a case with an acute infection in the pelvis no man can say what the outcome of such a case will be. Careful history taking, the clinical picture, with the assistance we can get from the laboratory will usually guide us as to whether we are dealing with an acute appendix, ruptured tubal pregnancy, or a strangulation, or thrombosis of a pelvic organ or neoplasm, in which instance immediate operation should be done.

The differential diagnosis between an acute appendicitis and the acute infections of the pelvis sometimes taxes our clinical accumen to the utmost. In acute salpingitis the patient does not appear so ill, the temperature is usually high but the pulse is not in accord with the temperature. The face is often flushed but not to the same degree anxious and apprehensive. The function is not so greatly disturbed, nausea and vomiting are not a feature, though there may be considerable distention. In this differential diagnosis do not forget that you have a finger to guide you. Do not deny the woman the right of a pelvic examination.

In salpingitis you have your bilateral tenderness and masses to be felt and in acute appendicitis the right side tenderness may be felt only.

In ruptured tubal pregnancy, a thrombosis of a pelvic organ, a strangulation or a neoplasm we usually have symptoms that will lead us to suspect them and it is in such cases that the sedimentation time is so invaluable. In the above conditions where there is no inflammation, the sedimentation time is not quickened. As a general rule the sedimentation test should be employed in all acute pelvic conditions.

It is of aid in distinguishing the unruptured tubal pregnancy, for the acute salpingo-oophoritis, a condition with which it is often confused. In ruptured tubal pregnancy, the sedimentation test shows the blood sinking time to be at a normal level for the first twenty-four hours after which time it becomes more rapid and simulates an inflammatory lesion. Used in conjunction with the leukocyte count, it is a check and an index that will more safely guide one as to when to operate upon the patient with safety. The fluctuating leukocyte count together with the moderate elevation of temperature differentiates ectopic gestation from a purulent salpingitis with its more uniformly high leukocyte count and fluctuating temperature. One is seldom justified in opening the abdomen for a pelvic condition with less than a sixty minute sedimentation time and when done in the acute condition is, usually, disastrous to the patient. As Curtis puts it, "Those whose fingers itch to operate" have too good an excuse to do so when presented with such a case, and the abdomen is opened and all that the poor woman may hold sacred is removed or mutilated, when notwithstanding, for the past twenty years it has been the teaching of such men as, Simpson, Chipman, Polak, Matas, Miller and others too numerous to mention, men whom we all know to be men of too high a type to teach any thing but that best suited to the poor afflicted woman and the men entrusted to properly care for them, when they say that it is criminal to operate on a case of acute pelvic infection. We should heed the teachings that we know to be sound and not be in a great hurry to castrate the woman any quicker than we would a man who has a gonorrheal orchitis. Let us reason the matter out, it is the easiest thing on earth to understand. Custom and habit; habit to operate upon the woman and custom to treat, conservatively, the man.

Recently while visiting clinics, I witnessed an operation for varicocele that impressed me very much. The operator for some reason had to remove the testicle which brought the operation to a speedy close. He was very anxious about the matter and went in to talk it over with the pathologist. I am sure that there was a question in his mind as to what complications might come up about the removal of an organ that the man had not given his consent to have removed. Unfortunately for the woman, undergoing a pelvic operation, no such consideration is given her and she may sacrifice all that she most desires without recourse on her part.

The adequate treatment of acute pelvic infection consists of rest in bed, opiates enough to alleviate suffering, good food, fresh air and something to stimulate cell activity. Rest in bed, properly observed, is the same to a crippled abdomen and pelvis as a splint is to a broken bone and the same rules should be observed in the treatment of acute pelvic infection. The need of opiates in the treatment of these conditions is imperative, and one but rarely sees a habitue in a woman who has had to take opiates for the relief of pain in such conditions. These patients should be given enough opiates to relieve their pain. There is no medicine or other measure that will take the place of nourishing food and fresh air in these cases just the same as in puerpural infections. Therefore, I cannot stress too strongly, the urgency of plenty of nourishing food and fresh air.

Protein therapy is, probably, the only measure that we might term curative in these cases. The administration of five cc. of Aolin or milk in some form with the subsequent use of ten cc. every second or third day, given deep in the gluteal muscles, usually relieves pain and reduces temperature to a degree almost unbelieveable. I have, so often, seen exudates disappear; pus tubes gradually fade away almost like the snow from the noon day's sun. The ice bag is indespensable in the treatment of pelvic infection, but to be of any value must be used almost constantly. The bowels should be kept open with mild laxatives and a daily enema. Douches are a nuisance in gynecological cases and should be used only for cleansing purposes.

CONCLUSIONS

1. Acute pelvic infection in women should be correlated and fade from the picture when considering acute abdominal conditions that require immediate operation.

2. Certain conditions in the pelvis which are eventually surgical are definitely non-surgical in their acute stage.

3. Operation in the acute stage when the physiologic balance is disturbed is too often a hazardous procedure and to open the abdomen is a surgical calamity.

4. It sometimes is the case in such conditions that one has nerve enough to open the abdomen and not enough nerve to close it unmolested when he sees the pathology and his mistake.

5. Eighty-five per cent treated conservatively will not require surgical intervention.

6. A few operators who advocate immediate surgical intervention in the acute pelvis may have a low mortality and may escape the dangers of peritonitis, post operative ileus, post operative adhesions, hemorrhage and fecal fistulae that are likely to happen to even the most dextrous operators, but think of the poor woman who has made a losing fight even though she recovers.

7. Surgery should be reserved chiefly for the sequelae of the disease.

8. I believe in conservatism in the operative treatment of the pelvic organs, if the insult to the organ is beyond repair, the removal of that organ is justifiable.

DISCUSSION.

Dr. H. R. Shands (Jackson): I feel sure that Dr. Payne has brought to us the consensus of opinion of the leaders in the surgical profession in his paper. The leading men have been preaching this for years, and I think the plan outlined by Dr. Payne is the accepted plan now of treatment for acute pelvic infection.

I shall take just a minute to state that I have had some experience in some four or five cases in which I have proceeded a little differently from that which he has outlined.

I think if you have a pelvic infection or anything of that kind, of course it is foolish to operate. Every so often, once or twice a year, you will have brought to you a case with a diagnosis of appendicitis in a female. In my experience this has been the unmarried females. They come in with a fever as high as 103°. I am always suspicious of a high fever. In at least five or six cases of this kind I have asked concerning a vaginal discharge.

I had one case of a little girl three years of age. We made a smear and found that the child had gonorrhea. Acute salpingitis in a woman, in my experience, comes on like acute epididymitis in a man with gonorrhea.

When you catch one of these cases in a child within the first twelve or eighteen hours which has been brought to you on the diagnosis of appendicitis, in my experience, there is no exudate at all from the tubes. You may find a drop of pus, but if you remove those tubes, as I have done in a number of cases, the case gets well just about like an acute appendicitis case.

If there is any induration, it is certainly proof of objective operation. In at least 95 per cent of the cases I treat them exactly according to the plan outlined by Dr. Payne. I think in a few selected cases where you get an acute onset of acute salpingitis before it has involved the surrounding organs that operation may be avoided. I don't think anyone hopes that a tube which has had an acute gonnorrheal infection will become open and bear children. With that exception, I agree entirely with the most excellent paper that Dr. Payne has presented.

Dr. J. S. Ullman (Natchez): I, too, want to compliment Dr. Payne on his paper. There is no doubt that we cannot have too much conservatism. In the matter of the care of those cases of incomplete abortion, I think we should be extremely careful in the use of a curet or any other instrumentation. On one or two occasions recently, I have used an electrically lighted hematoscope as an aid to finding out the location of the retained mebranes. I think it saved a good deal of time and a good deal of traumatism in cleaning out the uterus. In enabled me to go more definitely to the point with a pair of forceps.

Dr. Payne said nothing about technic or treatment, but in cases of cervicitis we have two very efficacious methods that we may use now (one is radium and the other is diathermy) in getting rid of the chronic infections of the cervix. I believe that these methods, either one or both, properly used will do much to prevent the ulceration and induration that may later on go into carcinoma.

As I understood Dr. Payne's paper, I don't believe the type of pathology he was speaking of was the type that Dr. Shands had reference to. As I understood Dr. Payne, it was a chronic pus tube. I believe that Dr. Shands is right in taking out these tubes if you get them early.

Dr. W. H. Anderson (Booneville): I can add very little to this paper, but I certainly enjoyed it and am very much interested in it, especially with regard to the paper I read last year along the lines of the new era in surgery in which I stressed the importance of conservative surgery. This seems like a very timely paper, and is certainly one to which I could add nothing, except one type of infection we have that we might carry a little further.

Dr. Payne spoke of the erosions and the slight lacerations of the servix treated by actual cautery, which I think is decidedly the best plan. We have a type of case which comes along with these infections which flares up after the normal child birth where they have had lacerations of pretty severe types previously, and we get those infections sometimes for which the physician who delivers the case is blamed, while I think the infection was lying there dormant in the cervix and those lacerations after child birth cause those flareups.

This gives us a little room for not only conservative surgery, but brings to our minds the importance of a little preventive surgery in repairing lacerations of the cervix at the time of delivery.

I think it is pretty well agreed now that lacerations either of perineum or the cervix should be repaired at the time of delivery. While this was thought hardly advisable in some cases, it seems to me that my experience has been that they get as great a number of healing cures by doing the repair at the time of delivery as they do by waiting until later on.

There is one good thing about it. The tissue is lax and there is not as much pain after repair of the perineum or the cervix. I believe, taking it all around, they heal as well on the average at that time as they do if you wait until later.

There is one other type of case which requires conservative surgery. We give the patient plenty of time, even after we make our incision, in cases with a large abscess of the pelvis. After we get on the inside we still need to do conservative surgery. I have had a few cases like that which have made me stop and think, because I lost a patient because of a very large abscess. The patient had had no fever for some time, with a great amount of pathology. The patient had no resistance or latent powers with which to carry through. Even in those cases that have been clear of fever for some time, occasionally you will find a case in which you need to be conservative, perhaps drain the abscess after you get on the inside rather than to do extensive surgery.

Dr. J. W. Jackson (Longwood): A well presented paper has been given to us on a subject that is of timely importance. I believe there never was a subject that has two sides to it as this one.

Conservatism in the healing of acute conditions in the female pelvis has taken hold upon every fair-minded physician and surgeon who wishes to do justice to his patients in justice to his reputation as a practitioner.

When confronted with the problem of treating a case of acute salpingitis, we should not ask ourselves the question, "Shall we operate at once?" or "Shall we wait until the disease becomes quiescent before operation?" The question that concerns us most is "Will an operation be necessary toward restoring this patient to health after conservative treatment has been practiced under the most favorable conditions attainable in a case?"

In the case of a young woman who has not borne children, why deprive her through castration of the duties and joys of motherhood? Why subject her to the vasomotor and psychoneurotic disturbance which often result and which sometimes causes considerable annoyance to both the patient and the physician.

I have observed acute salpingitis cases that get well at home, cases which have been treated conservatively along the lines that have been suggested. Some were being prepared for operations which I told the families were absolutely necessary.

Unfortunately, the ideal conditions that are necessary for a conservative treatment in these acute conditions are in the majority of average cases not obtainable. The problem that oftentimes worries the doctors is not the problem of determining what is best to be done; it is more frequently the economic problem. Many of our cases are already financially, as well as physically, wrecked. They are unable to stay at home for more than a week. Hospitalization is out of the question unless it be in a charity hospital, which is usually too overcrowded to admit another case. These unfortunates suffer complete attacks until finally admitted to the hospital where the surgeon has to make a long preparation before he has to operate.

This is the type of case, gentlemen, which places the surgeon in a compromising position and forces him to operate.

Dr. S. W. Johnston (Vicksburg): In 1925 I presented a review of 260 cases of inflammatory diseases before the Tri-State Medical Society. I want to take issue with Dr. Shands in operating on acute salpingitis. There is only one case of acute salpingitis that should ever be operated on and that is when the appendix is involved; and always if there is an appendiceal involvement in acute salpingitis, of course you operate. One should never operate on acute salpingitis unless there is an appendiceal involvement.

Dr. Will Mayo, in a paper recently published by him, takes the stand never to operate on acute salpingitis. If you have to do something, make a vaginal puncture.

Dr. T. B. Sellers (New Orleans): Dr. Payne has left very little to be said, but no one who has served in the Charity Hospital at New Orleans at the time to which I have reference could keep quiet when the question of pelvic infection is brought up.

When I entered the medical field, conservatism was in its infancy in handling pelvic infections. I have seen the Charity Hospital's mortality reduced from about 33 1-3 per cent to 1 per cent, and in some instances, even ½ per cent. That is sufficient to prove, and statistics show as of 1000 cases handled there, that conservatism is the only treatment for pelvic infection.

There is one point which I should like to mention that the doctor referred to in treating endocervicitis. Cautery is the only means by which you can reach the endocervical glands. Infection is not superficial; it is deep in the endocervical glands. You must destroy those glands in order to do anything with the infection; but don't think that any acute endocervicitis or acute gonorrheal endocervicitis is an indication for cautery. Leave that case alone until the patient acquires immunity and until you have a chronic state before you cauterize; otherwise, you are liable to have a pelvic abscess from the invasion through the lymphatics.

The question of rest in bed, gentlemen, is an abused term. A great many of us tell a patient to go home and rest and report to us in two or three weeks, or we might drop around to see her in two or three weeks and find the patient not improved, or perhaps worse. We condemn the rest treatment, therefore, because of the patient's condition.

However, in order to get results in pelvic infections, the patient must secure absolute rest; that is, in the sub-acute, acute and chronic states. By absolute rest I mean they must use the bed pan, they must lie down to eat their meals, and they must not get up for anything.

I do not agree with the doctor concerning douches. I am a strong advocate for hot therapeutic douches, using about two to three gallons, depending upon the surroundings and the condition of the patient, once or twice a day. The idea is to get the heat and to get it at the walls of the vagina, and this heat should last for over a period of about thirty minutes each time.

I know in my hands patients have recovered more rapidly when given douches, and when those douches are given properly, than when they have not received them.

There is one other point concerning the douche. Have the douche not over a foot and a half or two feet above the level of the patient's hips. If you do not instruct the patient specifically, the trauma from the flow of water four or five feet high (the patient imagines the faster they receive the water the better it is), will do more harm possibly than good.

One other point mentioned by the doctor is the sedimentation test. I believe it is a simple test. There are three or four different technics. Those of you who are not using it if you will use it you will be well pleased with it in puerperal infections or salpingitis cases as a diagnostic and prognostic agent, and it will certainly keep you out of trouble. It will keep the medical men from sending a patient to a surgeon before it is necessary.

There is one problem the surgeon is always up against. A patient comes in from a rural community with an acute pelvic inflammatory disease. The question is whether or not to operate. It is very difficult at times to handle a situation of that kind. If you will do the sedimentation test, you will find it will help you considerably. You don't

need a microscope. Simply put 1 c.c. of blood in a little tube and some citrate of soda and you can make the test in your office. It is simple, but very delicate.

Dr. A. G. Payne (closing): I want to thank you gentlemen for the very liberal, and, in most instances, satisfactory discussion. Someone made reference to what Charlie Mayo said. I have heard Dr. Charlie Mayo say himself, when talking about using drains (and I use possibly his same technic), that he had a few in the cemeteries who would not be there had he put in a drain.

I want to say that I have a few people in the cemetery whom I wouldn't have had there had I treated those cases of acute infections in the pelvis conservatively as I treated the man with gonorrheal orchitis, instead of performing an abdominal section.

In regard to what Dr. Shands said concerning little children, I think that is the most distressing condition on earth which a doctor has to treat. It seems to me the same procedure should be gone through as we would go through in an older girl or a woman. Sometimes we forget the various conditions that are going to run upon us within the first four or five days after an abdominal section for acute salpingitis.

With regard to this moot question of incomplete abortion, I have tried to stress in these cases of incomplete abortion, and I believe from the many years of experience I have had that it is best to not curet but to curaye, as it were, put in a dilator and get out the retained masses which might be there.

I recently had one of these cases which I watched very closely. I first saw the case at my office. I put in a tampon and the woman came back to the office the next day with the fetus in the sac and with the placenta seemingly complete.

She continued to have pain and about the third or fourth day developed a little fever. I sent her to the hospital and did this simple washing out of the uterus, after which she had no more pain and no more trouble.

It is those cases of septic abortion that we have to leave absolutely alone. We can't afford to interfere with that woman. That is the only condition, I believe, that we have to watch closely, except in the case of hemorrhage.

In regard to cautery, Dr. Ullman said that I didn't say anything about the treatment of these conditions. I mentioned that a great many kinds of office treatment are worse, in my opinion, than useless, and some form of cautery treatment has to be used if you ever cure those patients.

I think Dr. Sellers brought out some valuable points. Of course, I don't agree with him about the douche.

## SIMPLE GLAUCOMA: ITS EARLY RECOGNITION A PREVENTATIVE OF BLINDNESS.*

LUCIEN SIDNEY GAUDET, M. D.,

NATCHEZ, MISS.

It gives me great honor and pleasure to share in the privilege of representing the Eye, Ear, Nose and Throat Section before the General Session of the Mississippi State Medical Association, and I hope my paper will be acceptable to you.

In April 1928, the Mississippi State Legislature passed a law establishing the Mississippi Commission for the Blind.

Some time back the Mississippi State Board of Health mailed to each physician in the state, a letter and pamphlet entitled "That Eyes May See," which gave an outline of the duties of this commission, two of which are of especial importance and interest to the medical profession,—one as to the cause of blindness, and the other as to the prevention of blindness.

The establishing of this commission we should consider a very important and progressive movement, because we well know that the majority of blind people are helpless burdensome liabilities to their respective communities, as well as to the state. This is well attested by the fact that they can do little for themselves, or expect much assistance from their families, and often have to depend on charity for an existence. This condition of affairs the commission hopes to ameliorate and correct as time passes.

I hope each one present has carefully read this letter and pamphlet, as already an incomplete survey shows some sixteen hundred persons in our state, blind or nearly so.

Glaucoma is of paramount interest to all of us, because it is a disease that eventu-

*Read before the General Section at the Sixty-second Annual Session of the Mississippi State Medical Association, Gulfport, May 14, 1929.

ally leads to loss of vision in all cases, but if properly cared for, many cases can be arrested, and loss of vision prevented.

The family physician is so often in a position to give proper advice and suggestions in regard to errors of sight, and should be ready to guide them along proper channels where they can derive the greatest benefits.

A patient complaining of some trouble with seeing should by all means be properly examined and the cause investigated. It may be an error of refraction, which can be corrected by glasses fitted by one properly equipped to do refraction. Or there may be pathological changes direct and indirect to cause a disturbance of vision. It may be a corneal, lens, uveal, retinal or optic nerve disturbance, or glaucoma, the disease we are now discussing.

Just a few months ago, a patient was brought to me for operation on her eyes because she was completely blind. Three years previous she had consulted her physician for failing eyesight. She said, that without examining her he told her to wait until she was blind, when she could have her cataracts removed, and see again. She did not have cataracts, but a complete glaucoma without even light perception. In the sorrow of my heart, I had to inform this poor soul her sight was gone forever. Our mistake, my friends! I hope none of you present has made or will ever make such an error. If you do not know, or have not the time to know, send the patient to someone that does know, and help reduce the number of blind, and make our consciences lighter.

I wish to cast no reflections on our physicians, for no greater, nobler, more honorable or self sacrificing band of men ever lived. I am only trying to help prevent blindness, where it can be done.

You may say, "Why lay so much stress on this particular disease? There are other diseases that cause blindness." True, as you say, but the type of glaucoma we are speaking of comes on slowly and insidiously, sneaking along like a criminal in the darkness, gives so little warning of its approach and does damage that ultimately results in an irreparable loss of so much to the patient.

Simple glaucoma is often seen by the eye physician for treatment too far advanced to accomplish much benefit.

The reason is easily explained. There were no outward symptoms, nor pain, merely a gradual failure of sight.

What is glaucoma? An increase of the contents, with increase of tension of the eyeball. This disease is oftentimes confounded with trachoma, a disease of the lids and not the eye proper.

Glaucoma comes under several divisions. The most important are the acute and chronic congestive forms, and the simple or non-congestive type. The congestive types are not taken up at this time, because they present such symptoms as cause the patient to more often seek medical advice for relief, so we pass on to the simple or non-congestive type.

In this disease you have a gradual elevation of tension, which accounts for the freedom from pain and congestion, as the walls of the globe slowly stretch and adapt themselves to the change in the amount of the contents of the eye.

The etiology of this disease is still an unsettled question but most investigators claim the elevation of tension is caused by a disturbance of the relation between inflow and outflow of the contents of the eye.

Advanced cases of glacouma are easy to diagnose, but as the purpose of this paper is to show the need for the early recognition of the disease, it is upon this I will lay stress, and endeavor to do so in a manner that will be most acceptable to the physician.

Many years ago, Dr. Paul Roemer, renowned Professor of Opthalmology at Griefswald in speaking of glaucoma said: "If the general practitioner would learn to recognize early, the peculiar nature of the

disease from which the patient is suffering he would accomplish much good, and prevent much harm." This is the key to the situation, not only of glaucoma, but many other diseases whose prognosis depends on early recognition.

In the early stages of simple glaucoma, the patient complains of his vision being disturbed. It may be a little foggy, or objects or persons cannot so well be recognized some distance away. Sometimes colored halos will be noticed around artificial lights, also light flashes. These are all important enough to suggest investigation. The disease attacks both eyes, either together or at different periods, occurs in middle or advanced ages, more commonly in women, and often is seen in the colored race.

The observation that has impressed me so forcibly in all types of this disease are hypertension, arterio-sclerosis, and dental caries and pyorrhea and I make special mention of these for the physician. What can we conclude from the above tri-ad? Two things. (1) That the three pathological findings above mentioned come within the scope of the physician to recognize and diagnose. (2) If the elevation of tension in glaucoma is caused by a disturbance between the inflow and outflow of the contents of the eye, and it is so often seen in connection with circulatory changes and focal infections, then we may reasonably assume that glaucoma is a local eye manifestation of constitutional disturbance or imbalance.

Pardon my digression, but coming back to the early diagnosis. If the physician will take a little time and observe the eyes of such a patient, he can obtain much information. He will notice the cornea is not so bright and clear, the anterior chamber not so deep, the pupils sluggish in action, and oftentimes somewhat dilated. Such a patient may give you good vision if same is taken. I have seen one patient give 20/15 vision, the so-called gun barrel type. The veins on the outside of the eye ball may be large and darker than usual. On palpating the eye, the increase in tension or hardness can be detected, especially when compared with a normal eye. Now comes the two most important aids in making a diagnosis, the taking of the visual fields and the examination of the eye grounds. Too few physicians are familiar with either, but both methods can be sufficiently practiced to give some aid in making a diagnosis. Any eye physician in your own community I am sure will co-operate if any should be sufficiently interested and have time, to instruct you to take fields of vision and use the ophthalmoscope. A Peter's campimeter and ophthalmoscope costing from $45.00 to $50.00 is all that is necessary, and I cannot too strongly urge the physician to get the ophthalmoscope and learn to use it, as it is so valuable an aid to him as well as to the specialist.

In these cases we have contractions of the visual fields, greater on the nasal side as a rule.

The ophthalmoscope reveals excavation or cupping of the nerve head or optic disc, beginning in the center and gradually extending to the margins, growing wider and deeper as the disease progresses.

I said nothing of the tonometer in measing the hardness of the eye, because I feel this rather a delicate test, requiring some skill and practice to be accurate and had better be relegated to the eye physician, or one who does it often enough to keep in practice in the use of it.

The treatment of these cases covers considerable ground. Besides correcting other pathological conditions that may exist in the patient, mode of living, rest, diet, proper elimination have all to be taken into consideration with the medicinal treatment.

The surgical treatment will not be taken up here as this also comes under the scope of the eye physician.

On the treatment, I wish to take this opportunity to lay special stress on the use of

mydriatics and miotics in the eye. Mydriatics dilate the pupils and miotics contract the pupils. These drugs when used without proper diagnosis and knowledge often bring disaster to the patient. In a red and inflamed eye with much pain it is well to remember you may have either an acute iritis or an acute glaucoma. In simple glaucoma, miotics like eserin and pilocarpin are used in varying strengths and frequences depending on the patient's conditon. Of late, glaukosan, a concentrated adrenal extract solution has been used in glaucoma with success and is well recommended.

DISCUSSION

Dr. G. H. Wood (Batesville): Dr. Gaudet has given us such a complete and lucid presentation of the subject of glaucoma that he has not left anything for the medical man to say. The fact is, it reminds me very much of the financial status of the specialist and the general practitioner. The specialist's code of ethics is against a divide, so the moral is, if the medical man has anything to say or expects to get anything from a patient, he must do it before it gets into the hands of a specialist.

Glaucoma, like malaria, was named from an erroneous conception of the disease, taken from the two Greek words: "ylauko's" meaning sea green, and "wpa" meaning pathological condition, used in the time of Hippocrates—any opacity behind the pupil with a greenish reflection. Consequently, at that time many cases of cataract were diagnosed glaucoma and vice versa.

There are several very important milestones or events in the history and study of this disease. We might say that in 1830, when MacKenzie discovered or explained the relationship of the increased tension in the eyeball, that was one of the foundation stones for the study of glaucoma. Later on, in 1850, the ophthalmoscope came into use which revolutionized all the diseases as to treatment and study of the diseases internally.

Following this very rapidly, in 1851, Gager discovered the changes in the optic disk, known as cupping. But the greatest milestone of all was reached in 1856 when von Graefe correlated all the symptoms up to that time, such as pain, dimness of vision, tension of the eyeball, dilated sluggish pupil, greenish reflex, and cupping of the disk, and then devised the treatment of iridectomy, which has stood the test of time and is practically, I believe, recognized by most ophthalmic surgeons as the best treatment for glaucoma up to date.

There are several other very important things which have taken place since that time. I might mention that Hamburger goes on to show the relationship, that is, of glaucoma being a local manifestation of a sysemic disease, showing also the condition of the choroid and the part played by the sympathetic nervous system, thereby devising the treatment of injecting adrenalin and suprarenalin into the cojuctive near the outer angle of the cornea, which he said proved a cure in several chronic cases.

Later on Dr. Abadie, whom I believe is considered by some the dean of French ophthalmic surgery, makes the statement on the same line of the constitutional effect of certain drugs and he devised the adrenalin-ergotin-calcium chlorid aqueous solution administered daily, and reports good results also.

There is still another which I should like to mention. Dr. Ramsey, I believe, studying along the same line explaining the condition of the chorroid, says that histamin and adrenalin are mutual antagonists and that whenever the system is overcharged with the histamin toxins there is an increase in the tension of the eyeball. Therefore, he recommends the giving of adrenalin whenever the capillaries are dilated or the circulation becomes impaired.

He makes a further statement similar to this: "All cases, even after an operation, require the same systematic careful treatment as they did before an operation."

Of course, Doctor Gaudet has covered the ground of what the state is trying to do towards helping these unfortunate poeple which I am sure every member of the profession appreciates, and I am sure the general practitioners are willing to do all they can towards eliminating this trouble as much as possible.

Dr. A. G. Touchstone (Meridian): Dr. Gaudet has covered this subject very thoroughly, but there are one or two points that present themselves in a case of secondary glaucoma. The patient complains first of dimness of vision during a routine examination and that is how these cases are sometimes recognized.

Early diagnosis means the whole thing in doing something for these patients. The patient complains of dimness of vision and upon inspection you find there is a cloudiess of the pupil or of the crystalline lens, the shallow anterior chamber, and on palpation there is a noticeable increase of tension. With the ophthalmoscope there is a beginning of slight cupping of the optic disk and these are the main points in recognizing the simple glaucoma.

The only treatment that I have ever seen that was worth while in the treatment of these cases was iridectomy.

Dr. Edley H. Jones (Vicksburg): I want to emphasize one point which Dr. Gaudet brought out. I want to emphasize that point with an illustration of a case.

I had the misfortune really of seeing a case a little over a year ago of a physician who had some trouble with his eye. I don't know whether or not he had much faith in eye men in particular, but it happened at that time a visitor who was a doctor was taken into his confidence and he told him how badly his eye hurt him. The doctor gave him some cocaine to relieve the pain. Cocaine dilates the pupil. It increased the condition and pained him more severely. The next day the visitor was gone and he spent a sleepless night.

He consulted another doctor who prescribed atropin. He was still having a great deal of pain and entered the hospital. I was called to see him. It was case of glaucoma that had been treated with cocaine and then atropin which resulted in an increase of all symptoms. That treatment, of course, was stopped immediately. Eserin-pilocarpin was used, but it was too late. The eye had never had good vision, as he had an accident some years ago. It was a sightless eye with severe increase in pain. It wound up by having to have his eye removed and the man is now wearing a glass eye, just because cocaine and atropin were used in a glaucomatous eye.

Dr. E. F. Howard (Vicksburg): I am not an eye man and I don't know any more about those things than most of you fellows do, but there is one little angle concerning what happens that these gentlemen haven't told you about. They tell you what to look for and what to do for it and all that sort of thing. But you look for it and just like me you don't know what you see and so the patient is no better off for your advice.

There is one little angle of it that they haven't thoroughly developed and that is if these cases come along slowly they are so frequently permitted to drift out of the hands of a doctor. The vision becomes a little dim, and under ordinary circumstances the patient is old enough that the doctor can say he needs some glasses, dismiss him, and then the patient goes to an optician (I believe that is what they call them) who makes and fits glasses and doesn't do anything else in the way of practicing medicine.

I am rather intimately associated with a rather hard-boiled egg who does eye work. While he is a very quiet man under ordinary circumstances, not so very many months ago we had to call in the fire department because of the language he used, when a patient came into him who had been going blind for six months with a glaucoma and in that six months had been allowed by the family doctor, in fact with his suggestion, to consult one of these opticians who had fitted him with glasses. The trouble had continued along and the eye was then in a condition where nothing could be done for it.

If the general practitioner will remember that maybe he owes something to his patient at other times than the patient comes to consult him because she needs a dose of calomel, perhaps that will help some.

Dr. L. S. Gaudet (closing): I want to call your special attention to the bad case in Vicksburg on which they had to bring out the fire department to take care of it.

My good friends, the object of this paper was first of all to try to bring a closer co-operation between the physicians and the specialist. The more I practice the specialty of eye, ear, nose and throat work, the more I realize I need the general practitioner and the man who can help me go over the patient thoroughly. This business of thinking that the specialist takes the patient away and doesn't send him back to the general practitioner is wrong, absolutely. Gentlemen, that is not so. If a man is a good eye, ear, nose and throat man, he wants to know something from the dental standpoint, he wants to know something from the circulatory standpoint, he wants to know something in so far as the laboratory tests are concerned, and to do this he has to send his patients back to those men who can handle them, because you cannot be an eye, ear, nose and throat man and be a surgeon and general practitioner and a radiologist and a pathologist and be a good eye, ear, nose and throat man. You have to be exclusively that and work

night and day to do it, and oftentimes you don't make a success.

The next thing I want to bring out is to try to impress upon you to buy an ophthalmoscope and get in touch with an eye man who is a friend of yours and take a patient, with a normal eye, dilate the eye and then if the eye man is interested and you are interested, when he has cases that present definite pathology he is going to hold that case over and send for you to look at it and you can become quite well educated in the use of the ophthalmoscope which is a very important instrument, almost as important to the general practitioner as the stethoscope, because lots of times you can see pathological changes in the eye long before you can see them anywhere else, and that may be of vast benefit to you in the prognosis of that patient.

I should also like to call your attention to becoming interested in those cases complaining of poor vision. You don't know whether it is a case of error of refraction, or a case of pathology, but we want you to become interested so that when you do get a case that doesn't see so well, you won't say, "Oh, you need glasses. Probably it is nothing at all." Get that patient to think that perhaps it is the beginning of some serious trouble. It may be something else besides glaucoma, we don't know, but then it may lead to blindness and we must remember that. Just suppose it should happen to be among your friends or in your families. We want to try to prevent that if it is possible to do so. We want you to become interested in these cases who complain of poor vision. Send them to someone or try to make the diagnosis yourself or call in the eye man. Take the patient to the eye man yourself and show the eye man you are interested in that patient and that you are interested in what he has and you will find that the eye man is more than willing to co-operate.

As I have just said, the longer I practice this specialty, the more I find I need the general practitioner and the surgeon, and I need them more and more every day because the diagnosis of eye, ear, nose and throat conditions are rather complex. You can't do it by yourself. You are going to fall down on your diagnosis the majority of times.

Under those conditions we would like ot see a closer and better co-operation between the specialty man and the general practitioner.

## NASAL SURGERY ON ALLERGIC PATIENTS.*

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I hope I may be pardoned for using some personal history as an introduction to the subject matter of this paper.

Being a victim of asthma and having gone the rounds seeking relief, from various allergists, I have become interested in this phase of work in its relation to nasal surgery.

A number of years ago before I had definite attacks of asthma, I had turgescent rhinitis practically all the time. A rhinologist thought a submucus resection would clear up my condition. For nearly three months following the operation breathing was quite difficult through the nose. About two years later after I had developed asthma I consulted Dr. Scheppegrell of New Orleans, who was a rhinologist but devoting a great deal of his time to allergic conditions. I had been advised to have an exenteration of ethmoids. Scheppegrell said in substance this: "Do not allow any one to operate on your nose again. Operations nearly always make the asthmatic conditions worse. I have one asthmatic patient now who has had seven nasal operations before coming to me and she has grown worse after each operation." Since that time I have been through the Clinics of W. W. Duke of Kansas City, and Ray M. Balyeat of Oklahoma City, who are making a specialty of hayfever, asthma and allied conditions.

Duke has the following to say in his text on allergy: "The fact is that sinus infection in perennial cases seems a sequel of chronic reaction rather than a cause of reaction. In one patient subject to chronic perennial asthma in whom a number of polyps were found upon examination, an

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attack of asthma could be precipitated by exerting a little pressure in the antrum during the process of irrigation by a rhinologist. It is by no means certain, however, that this effect was not the result of temperature change rather than pressure change."

"This subject is important, for many asthma cases and many patients with nasal reaction have been made infinitely worse by radical and even by minor operations in the nose. One patient for example has been a chronic invalid because of asthma since the date of submucus resection made while he was serving in the army. Whereas, it is frankly admitted that careful nasal work occasionally gives marked relief in nasal and bronchial cases, as a rule the reverse is the case. There are few instances in medicine where careful thoughtful work in surgery can do as little good or as much harm. Because of the latter, operative work should be done only as a last resort."

Balyeat in his book on hay-fever and asthma has the following: "These patients frequently have abnormal conditions about the nose that should be corrected by the nose and throat surgeon, but they should never be done during or just before the pollen season. The conditions mentioned, however, are secondary and not primary factors in the cause of the asthma.**** Many patients are made worse by operations on the nose, especially those cases whose turbinates are removed. At least ninety per cent of hay-fever patients and seventy per cent of the asthma cases do not need operative procedure of any sort."

Both of these eminent men think that most of the nasal pathologic conditions associated with asthma are secondary and not primary factors in the cause of the asthma.

With this introduction to the subject I wish to mention some observations in my own work with nasal surgery and report some cases in my own practice, and some in the practice of others.

Many men of prominence advocate somewhat radical operations in most of the cases of asthma, and claim some wonderful results with such procedures. In my own experience surgery on pathologic conditions of the nose in allergic patients will usually give much relief for a while but very soon the condition has returned to its old state, or worse. I have seen intra-nasal openings made into antra as well as radical operations give considerable temporary relief. I have also seen submucus resections, tonsillectomies, exenteration of ethmoids, etc., give much temporary relief. Few of these operations, however, give permanent relief from the hay-fever or asthma. I have noticed that submucus resections on these sensitive individuals will almost invariably be followed with a great deal of reaction in the nose with a long drawn-out convalescense.

I do feel that a marked deformity of the septum should be corrected. I believe that a purulent condition in any of the sinuses should have drainage, but I think the surgery should be the most conservative possible and that radical surgery in these cases should be strictly avoided.

Last year at a round table discussion a question was asked Dr. Mosher of Boston about nasal operations on hay-fever or asthma patients. His remark was, "I am afraid of them, since I have seen one death from an operation on such a patient."

CASE REPORTS.

Case 1. Mrs. H. G., came complaining of complete loss of the sense of smell, some headaches, a very tight nose, with quite a bit of post-nasal discharge, weakness and sleeplessness. Examination of her nose revealed both sides greatly congested with much polypoid tissue in the ethmoid regions. Roentgen-ray examination revealed cloudy antra and ethmoids on both sides. After exenteration of ethmoids, and making large intranasal openings into the antra she had very marked improvement, gained weight, the sense of smell returned and she was quite happy over the results for a few weeks. After this short period of excellent relief she began to have very severe attacks of asthma, something she had never had before. After this time it became a question of

fighting asthma. She had the skin tests and was found sensitive to animal epithelials and whole wheat.

Case 2. H. H. had similar symptoms to the case described above but did not have the polypi, nor cloudy sinuses. Turgescence was marked and he had a bad deviation of the septum causing considerable obstruction to breathing. A submucous resection was done. At the end of the operation there was no sign of a perforation. He had tremendous reaction following the operation, lasting for five or six weeks. It was hard with the very best shrinkage to give him any air through either side. When the swelling finally disappeared, there were two perforations in the septum. The patient was very little if any, improved from his operation. Skin tests revealed him sensitive to feathers, horse, cow, dog, cat and eggs. Treatment along the allergic lines has improved his condition wonderfully.

Both of the above nasal cases had they been checked for allergic tendencies and treated accordingly could probably have avoided any kind of operation and still had much relief.

Case 3. B. G. was having symptoms that simulated incipient tuberculosis. In a splendid general clinic he had a thorough examination, including roentgen-ray of his sinuses. They were "unable to discover any pathology in the chest except some thickening about the hilus of the lung, so often seen in cases of chronic sinusitis. Plates of the sinuses revealed polyps in both antra, badly deviated septum and slight cloudiness of the ethmoids." He was advised to "have the polyps removed and the septum deformity corrected."

He was referred to me for treatment. In spite of the marked deviation of the septum he had good ventilation. The secretions in his nose suggested to me an allergic condition. Skin tests revealed sensitivness chiefly to feathers, and other animal epithelials. All feathers were removed from his house, his nine cats killed, and he was instructed to stay away from horses and cattle. Ephedrine was used as a spray several times a day, and two or three times a week he had tamponades of argyrol. After a few weeks his cough had disappeared, and he had gained several pounds in weight. I then injected his antra with lipiodol and with the roentgen-ray found no filling defects in either.

I have had other cases with so much congestion in the antra that with transillumination and roentgenograms there seemed to be definite indications for surgical treatment, and yet after finding these patients were sensitive to pollens or animal epithelials, having them treated for this with vaccines, avoidance of pets, etc., and using ephedrine in the nose, the antra completely cleared up.

A prominent nose man recently remarked that he believed every Eye, Ear, Nose and Throat man's waiting room contained countless numbers of allergic individuals, many of whom are being operated upon without results.

Dr. John P. Henry, of Memphis, who devotes all of his time to the study and treatment of allergic patients, makes this statement, "We had one patient last winter who had had eight operations without relief. Nearly all of our patients have had from one to three."

I wish to give here a few case reports that he has been kind enough to supply to me, from his records:

Case No. 30397. A boy, aged 5 years, came last August complaining of sneezing attacks and afternoon temperature. In the past he had had several attacks of tonsillitis after which his tonsils had been removed. He had also some trouble with his nose and sinuses. Both antra had been drained the month before. He gave a history of frequent colds and had complained of itching in the nose but not much running of the nose. On account of the fact that this child sneezed some practically every day and had symptoms of frequent colds, the parents had never recognized the symptoms as seasonal hay-fever. Also, for two years he had been having a daily rise of temperature varying from 99-1/5 to 100-4/5. Removal of the tonsils and irigation of the antra had failed to control the various symptoms enumerated above.

On skin testing, this child was found sensitive to house dust, horse dander, cat hair, chicken feathers, dog hair, goose feathers, store dust, duck feathers, rabbit hair, sheep woll, cattle hair, Johnson grass, timothy, short ragweed, western ragweed, giant ragweed, orchard grass, sudan grass, and canary grass.

This case well illustrates the fact that there are a number of children walking the streets today who are sensitive to things and yet they do not have symptoms of typical hay fever or asthma. When the family history is positive for al-

lergy, that is, when other members of the family have been affected, then it is very important that these children who have frequent colds be tested.

Case No. 25173. A young lady, aged 26 years. Patient was first seen October 9, 1928. Chief complaint: headache, congestion of nose, frequent colds. This young lady had been going to Ear, Nose and Throat men for the past ten years. Her tonsils had been removed and she had a submucous operation. She had had the antra drained several times. When first examined, mucous membrane of the nose was congested and covered with mucous. The sinuses were cloudy on transillumination and roentgen-ray examination revealed the left frontal and the left ethmoid slightly cloudy. In spite of the fact that she had been going to ear, nose and throat men for a number of years, she continued to suffer with headaches, congestion of the nose and frequent colds. She stated that she had a cold more or less all the time and a daily headache. She had noticed that she could not use certain brands of rouge, face powder or perfume on account of sneezing attacks.

On skin testing, she was found sensitive to practically all feathers (duck, goose, ostrich and canary). She was also sensitive to certain animal epithelials such as cattle hair, guinea pig hair, cat hair, camel hair, dog hair, sheep wool etc., and orris root.

Treatment consisted of avoidance and elimination of animal epithelials, desentitization with orris root, and ephedrine as needed.

*Comment:* This is but an illustration of cases frequently seen who are definitely allergic but on account of the fact that they do not have hay fever or asthma, they consult oto-larynogologists and sometimes are operated upon several times without relief. This patient had seen a number of ear, nose and throat specialists but the last one she saw recognized the type of mucous membrane she had and referred her for allergic testing.

Case No. 28123. A man, aged 45 years. This case is reported because this man knew that he had hay fever but was under the impression that nothing could be done for it because he had taken "shots" on several occasions without relief. He had been troubled with his nose for fifteen years and had been consulting oto-laryngologists most of this time. He was practically never free of some sneezing or cold or some headaches. Frequently he would have to remain in bed two or three days at a time. His first nasal operation was in 1918 when he had a submucous resection and a portion of the turbinate bone removed. He had also had his tonsils out. Patient first came to clinic on July 27, 1927. He came directly to the ear, nose and throat department complaining of frequent colds, frontal headaches and watery discharge from the nose. Ear, nose and throat examinations revealed an irregular septum with polypoid tissue protruding from the right ethmoid area. The mucous membranes of the nose were congested and covered with watery mucous.

This case is also reported to bring out the fact that a great deal depends upon the ear, nose and throat man's attitude with such a case. If this man had been subjected to further operative procedures and the possibility of allergy ignored, then this patient, we feel sure, would have obtained no relief. In this case the ear, nose and throat man recognized an allergic mucous membrane and before doing anything about the polypoid tissue referred the patient for skin testing and whatever treatment necessary.

On skin testing, the patient was found sensitive to a number of the grasses, particularly Johnson grass, blue grass, timothy, bermuda, red top, orchard grass and crab grass. He was also sensitive to the ragweeds and sages. In addition to this, he was found sensitive to feathers and a few animal hairs.

In spite of the fact that this patient is a flagman on a fast passenger train, desensitization with proper selection of pollens has given him over 75 per cent relief. By protecting his mucous membranes from the constant irritation from pollen, together with elimination and avoidance of animal epithelials, this patient went through last winter with very few colds. Ear, nose and throat examinations at the present time reveal the fact that the sinuses are clear on transillumination, the mucous membranes of the nose appear normal and there is only a very small amount of polypoid tissue in the right ethmoid area. When this patient first appeared for examination, if the ear, nose and throat man had removed the polypoid tissue from the right ethmoid area and given only local treatment to the nose for the congestion, sneezing, frontal haedaches, etc., the patient would have had to take daily treatments and we know that relief would not have been complete because he would have been inhaling pollens all this time. As it is, he is not having any trouble with his nose and the polypoid tissue in the right ethmoid area is not deemed sufficiently important to warrant surgery, according to the present examination.

Case No. 22322. A woman, aged 42 years. This patient is interesting because, although it

may seem strange, she has suffered with spmptoms referable to the head and nose for a number of years, sixteen years to be exact, and yet she had never recognized the symptoms as those of hay fever. She consulted a number of men and none of them had suggested the possibility of hay fever. This case is cited on account of the above and also on account of the fact that she has had *eight* operations about the nose and throat without relief of symptoms. The patient was not seen until last year on September 22. She was suffering intensely and it is no wonder because the peak of the ragweed season occured last year on September 18, at which time there were 900 pollens to the cubic yard of air.

On skin testing this patient was found to be extremely sensitive to the ragweeds as well as grasses and a number of the animal epithelials. In fact, she was so sensitive that soon after the tests had been performed she had a systematic reaction which required adrenalin for relief. Coseasonal treatment was started at once and the patient responded remarkably well so that in a very short time she was symptom free. Throughout the past winter she was very comfortable and is coming in this year early so that she can be desensitized, first with the grasses and following that with the ragweeds.

"It is a pity that the type of mucous membrane which she had was not recognized years ago instead of last year. However, it is only during the past few years that these conditions are being brought to the front and talked about. It is also true that it has only been during the past few years that we, as allergists, can give the ear, nose and throat men any help on these cases after they have recognized them. This fact, no doubt is greatly responsible for the fact that all cases are not being referred at the present time."

I wish to present three cases also from Dr. Blasingame's practice, any of which might have come to radical surgery had they not been tested for allergic conditions and found sensitive, and appropriate treatment instituted.

Case 1. A young lady, about twenty-five years of age, had had a constant postnasal dripping with sneezing and mucous discharge from her nose for six or eight months. We treated her by nasal shrinkage and tamponade for several weeks without any benefit whatever. Finally she was given an allergic test and found to be very sensitive to house dust, orris root and wheat flour. She was desensitized from these and was immediately relieved and has been completely relieved for the past four months.

Case 2. A young man, about thirty years of age, had perennial colds and asthma for about three years. His nasal mucosa was considerably congested. He had a deviated septum. He had bad tonsils. He was tested out and found to be very sensitive to feathers, especially pigeon feathers, and one or two other things. We removed his tonsils and then he was given treatment to desensitize him from the specific things to which he was sensitive and he has been practically relieved from his symptoms.

Case 3. A young man, about thirty years of age, mail clerk, having constant colds, developed a cough for which he was examined thinking he had tuberculosis. It was found that he had peribronchial thickening in his chest, with no other signs of tuberculosis. Roentgenograms of his sinuses showed them all densely cloudy. A considerable amount of pus was washed out of both antra. Complete exenteration of all sinuses might have been indicated but he was given an allergic test and found to be very sensitive to the dust that he was greatly bothered with in the mail car where he worked. Window resections were made of his antra to drain off the pus and he was given appropriate treatment for his sensitiveness to dust and he has been greatly improved.

SUMMARY.

1. The vast majority of allergic patients consult the rhinologists first and he should be on guard to catch these cases that should be referred.

2. We all operate on many cases which should be referred to the allergists from the beginning.

3. We get much greater reactions following operations on allergic patients than we do on others.

4. Operations frequently give temporary relief, with a final return to the same if not a worse condition than the patient had in the beginning.

I have written this paper with a hope of stimulating closer investigation into the possibility of allergic cases as a factor in many of the cases with pathologic conditions in the nose for which we are now doing radical operations and getting no permanent results.

Since writing this paper I have received a letter from Dr. I. W. Barrett, formerly

of Lyon, Miss., and a member of this Association.

After receiving a program of this meeting and having noticed that I was scheduled to talk on this subject, he voluntarily wrote me the following personal history hoping that it would emphasize the thought I tried to bring out in my paper.

"Just two years ago this month while in Washington, D. C., attending the A. M. A. Convention, I was stricken with hay-fever, came home in June, worked hard all summer, and my symptoms gradually grew worse. In July, I put on a few skin tests and according to the way I interpreted the reactions, I was sensitive to several grasses and also to the ragweed pollens. Thought I would start taking the extract as soon as the season was over and prevent the return of symptoms the following season, but in September I came down with asthma which I have not been free from until this good day.

"November, 1927, I went to an allergist and he tested me very carefully and classified me as an animal hair case and started treatment accordingly. He disregarded the fact that I had gotten a positive skin test on myself, also the history, which I thought was very important. I kept up the treatment made up from feathers, house dust, dog hair, etc., and in January my friends decided to get me away from my work and take a rest, and they took me to Florida. Even in the winter time everything was pollenating right along and as I was not taking any pollen precautions whatever, I got worse all the time.

"While in Miami my nose got so completely blocked and I was so desperate waiting for a reply from the allergist, I went up to see a nose man and of course he recognized the allergic condition, but suggested it might be due to an infection, so he put a needle into my antrum and got some very thick secretion which he said had pus in it and advised an operation. The allergist had warned me against having any surgery done on my nose, but I couldn't hear from him, so in February I went to Memphis where I feel into the hands of a good friend where I got a 'Standard 1928 Nose Operation' for infected sinuses.

"I had a submucous resection, turbinectomy and ethmoid exenteration at one sitting and a week later windows in both antra. I was already pretty thin and had lost about 20 pounds, but I lost another 20 pounds in ten days and altogether have lost 40 pounds, none of which I have ever gained back. Believe me, from then on until December, 1928, I had a nice, juicy infection on top of a wild allergic condition, taking from 10 to 20 shots of adrenalin daily to control the asthma, and am still taking from 6 to 12 shots of adrenalin daily to control my cough and asthma and sleep less than four hours out of twenty-four.

"There is no way of describing the suffering and discomfort I have gone through, probably due to too much surgical interference. I don't say the surgery was the cause of my long drawn out illness, but I do think I could have handled the situation a lot better had I not had so much done, and I do not feel unkind toward the surgeon for he was conscientiously doing all he could to relieve me.

"In July, after I had worried all the doctors in Clarksdale to death, and I was not getting any better (still not realizing it was pollen that was killing me), they thought I was going to die, and, as much as I had infected sinuses they thought the dry winds of San Antonio, Texas, would probably help me, and some of them knew an allergist out there. So they sent me out there the first of July. The day I landed there the allergist found out I was a pollen case and he told me that I had come to the worst place I could have possibly gone, so he put me in bed in a hospital and I did not get out of that room until January 8, 1929. I suffered torment for over six months, taking from two to three bottles of adren-

alin a week. Had to leave there on account of cedar pollen which was abundant and I was very sensitive to it.

"Came to Memphis in January, stayed there about two months and had begun to improve enough to get out in a closed car for a ride once a day without getting very tired, but when trees began to pollenate I had to move again, so I decided to come to Chicago as the air analysis according to some show a considerable comparative reduction in wind-borne pollens here and other places which have been checked up.

"So I am here at the above address, in the middle of the city on the lake front to give it a trial. Of course I am taking the usual feather, wool and house dust precautions. I have started timothy extract four different times and as low as .02 cc. of 1:500,000 dilution and by the time I would get to .04 cc. or .06 cc. I would have a violent reaction. So the allergist advised me to leave it off for a while and try to build up some or maybe I would get a little resistance where I could go ahead with it. I am also keeping a diet chart and watching that very closely.

"I had to sell my home, furniture, automobile, office and equipment and make it my business to get well, but up to the present it seems to me that business is awful dull in this line.

"I know I have burdened you with my troubles and I hope you will pardon me for doing so, but I wanted to emphasize a point, which I know you already have in your paper, that allergic patients with swollen, congested, engorged nasal mucosa without polypi should not be operated on until the allergic condition has been controlled (probably won't need it then) and especially during or just before the hayfever season. I think this one of the most important points that a nose surgeon has to consider."

DISCUSSION.

Dr. W. A. Stevens (Greenville): Dr. Guyton has given us a very instructive paper. A short time ago I spoke to a friend on the subject of allergy and he said he thought it was all a lot of bunk. I will profess myself as an agnostic in this field.

I am sure that at intervals all along down the line since I have been doing special work that I have seen cases of intractible, stubborn conjunctivitis, which were due to allergy. I have also seen edema of the eyelids, which I thought was due to allergy. In regard to the nose and asthma, I think the main cause is allergy. However, there are some things which will always puzzle me. In talking with hay fever patients nearly all of them tell me that their headaches start at certain times each day. I have been out of doors enough to know that nature does not make flowers that way. It seems to me that there must be some sort of nervous explosion in addition to the allergic cases.

I remember in one case a woman told me of a young son who suffered from hay fever and asthma. She took him to a doctor, who found him sensitive to several things. He put him on treatment and got no benefit at all. I had a little curiosity to see electricity tried along the spinal column. I have never been able to get enough enthusiasm to test these cases for about twenty different things and if I found they were sensitive to these thing I would be puzzled to know what to tell them. It would seem to me you would have to normalize the nervous system or get off the earth, both of which would be impracticable.

Dr. Guyton says he believes in correcting the gross deformities of the septum that cause trouble, and if there is pus in the sinuses he thinks they should be drained, but by the most conservative ways possible. I do not believe in a nasal operation in the presence of acute inflammation, following acute inflammation or immediately preceding.

That about covers my belief on nasal surgery, not only for allergic patients but for all patients.

Dr. D. C. Montgomery (Greenville): I think it takes a paper like Dr. Guyton's to wake us up. Now and then we get an especially good paper of this type, which makes us stop and think. I think his paper is a friendly constructive criticism of the ear, nose and throat men.

We are not complete in our diagnosis or in our examinations of our patients. If we were we would be apt to exclude those cases from our operating calendar. I still am of the opinion that there are definite cases of asthma, nasal in origin, due to sinus trouble, which, if properly corrected, will result in a cure to the patients.

Dr. E. F. Howard (Vicksburg): There are just two points that Dr. Guyton brought out fully. The first one was regarding mild cases which you might possibly overlook, where the patient has a

little nasal discomfort, due to pollen, and comes to the doctor and he does not recognize the condition. He says he will straighten it out and maybe he will be able to breathe better.

Those present who have been practicing only for the last thirty years do not remember the time when he had so much trouble in evaluating our cases because we did not know so much about the nose then. We would take anybody's word for anything. In my early days I smoothed out two septums in allergic patients. Whenever the patients came in the office I wanted to get out of the window and sometimes I did.

The other point is that when you send your patient to an allergist and he sends you back a negative report and that patient has got hay fever and you know it, don't always accept his word just so.

A gentleman came from Texas, past forty years of age, who had never had hay fever. Coming across the road between Shreveport and Vicksburg the train runs through rag weed country and he got a case of hay fever. I sent him to the allergist and he sent him back with a negative report. He came back about two weeks later and when he got to Vicksburg he could hardly see and could hardly breathe. He was a miserable looking person. I sent him back to the allergist. The allergist scratched him. He found a good reaction. Even when you have a severe reaction you cannot always rely on the skin test.

I think Dr. Stevens was right when he said he was an agnostic.

Dr. Robin Harris (Jackson): I don't like to operate on hay fever or asthma cases except in sinus diseases. I think it is absolutely necessary to clean out every bit of pathology you can find in every sinus that is affected. If you do that a lot of them get well. That does not mean that all these hay fever and asthma cases are going to get well, but they will get well if you do your sinus operation.

Dr. B. S. Guyton (closing): There are some cases in which surgery should be done. If you have a patient who has had asthma for a while and if you are not certain surgery will help you correct it, wait a long time before you do any surgery on the patient.

Dr. Stevens mentioned pollens and the time of day they affect people, the psychic effects, etc. You may be interested to know that pollens are much thicker in the air about 3 or 4 o'clock in the morning than at any time and everybody's temperature is lowest at that time of day, and you are more likely to have asthma at that time than at any other time.

Dr Scheppegrell had pollen collected from an airplane and found them as high as five miles.

## SOME OBSERVATIONS ON MAXILLARY SINUSITIS.*

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It is the purpose of this paper to discuss those cases of maxillary sinusitis which act as a foci of infection and which, as a rule, are unsuspected. Neither the acute nor the advanced chronic suppurative types will be considered.

The maxillary sinus, originally described as the antrum of Highmore, is the largest and most accessible of the nasal accessory sinuses. It was natural that it should be the first to receive the attention of investigators. We probably know more about this sinus than any others, yet I still have some difficulty in diagnosing some cases that consult me, and I presume this difficulty is shared by others. In presenting this paper, it is my desire to stimulate a more or less round table discussion wherein each may present those practical points which he has found most valuable. Such a discussion should be helpful to all.

In such a gathering it would be superfluous to discuss anatomy and physiology. However, it might be interesting to review the characteristics of the mucous membrane. It consists of three layers: ciliated epithelial, tunica propria and periostial; the later two are so intimately connected that, to all intents and purposes, they form one. The glandular supply is rather meagre, being mostly limited to the area around the ostia. The thickness of the normal membrane is usually about .02 mms. It is very loose around the ostia and prone to edematous swelling on slight irritation. Skillern remarks, "It is curious to note with what facility this thin, delicate layer assumes a thick myxomatous mass of tissue under the influence of suppurative processes of comparatively recent origin."

*Read before the Section on Eye, Ear, Nose and Throat, at the Sixty-second Annual Session of the Mississippi State Medical Association, Gulfport, May 15, 1929.

It is this characteristic of the membrane (that is, edematous swelling on slight irritation) that forms the basis of the pathologic physiology found in the maxillary sinus. It is easy to understand how such a swollen membrane would block the ostium (or ostia; as the case may be) preventing ventilation and interfering with drainage. The normal secretion of the membrane, combined with such exudate as might be formed, would furnish any mirco-organism with a most excellent culture medium, in vivo. Should it result in a low-grade chronic infection, the sinus would then probably form a focus of infection. Ersner, in his pathological classification, says, "The non-suppurative maxillary sinus is divided into the following: ***(c) degenerative and retrograde types, under which belong the trophic and polyps. In this group we have patients who have had focal infection without actual nasal symptoms."

The type of infection is of primary importance. A virile infection, such as a streptococcus, is always dangerous; while a mild infection, such as staphylococcus albus, causes little concern.

These cases are usually referred to the rhinologist by the internist, seeking possible foci of infection, and must be given a thorough ear, nose and throat examination. Some cases demand every known diagnostic procedure while others are very simple. There is frequently a history of influenza, antedating the patient's symptoms; occasionally one of the acute infectious diseases appears to be the starting point. Some patients recall a bad cold, during which they suffered with pain over, in and under the eyes; with tenderness over the canine fossa for some time. However, the majority of these patients will have a negative history.

At the time of examination some patients will complain of headache. Occasionally, one will be tender over the sinus or complain of heaviness or tenderness in one or more of the upper teeth, but such is usually not the case. With a negative chest examination, a dry hacking cough is almost diagnostic of some type of sinus infection, though, of course, the maxillary sinus is not always involved. It is worthy of emphasis that many of these antra, acting as foci of infection, have practically no history of symptoms that would lead one to suspect an infected sinus.

Examination usually reveals a chronic congestion of the nasal membranes on the affected side. Dr. D. C. Montgomery recently called my attention to the fact that a chronically hypertrophied inferior turbinate usually denotes an infected antrum and I have found this a fairly reliable sign. Of course it does not always hold true when the septum is deviated to the other side, causing a so-called physiologic hypertrophy. Free pus in the nasal cavities is practically never found in this type of case, but a postnasal discharge, a granular nasopharyngitis, or red streaks down the side of the pharynx are suspicions. Posterior rhinoscopy will reveal which meatus the discharge is draining from. A carbon arc lamp is essential for a proper examination. After shrinking and anesthetizing, the middle meatus can be examined with the naso-pharyngoscope. In my experience a rather profuse discharge always indicates an infected antrum. In such cases the ethmoid or frontal sinus, or both, may also be affected.

Transillumination is a valuable aid, but can only be considered reliable when it confirms the clinical examination. If both antra are affected, it is of no value. However, it should always be employed. Roentgen-ray is far more reliable, though not absolutely so.

When a case has been referred to me, seeking a focus of infection and the history, clinical examination, transillumination, naso-pharyngoscope and roentgen-ray examinations have been found negative, I do not pursue the matter further but give the internist a negative report.

There are doubtful cases, however, which should be examined further. Let us suppose that a case has a negative history, no symptoms, clinical examination negative except for a moderate amount of mucous postnasal discharge and a mild naso-pharyngitis, transillumination and naso-pharyngoscopic examinations negative and the roentgen-ray showing one antrum very slightly hazy. In such a case, the suspected antrum should be punctured, a culture taken and the antrum should be irrigated; iodized oil may be injected and the sinuses again roentgen-rayed. These procedures demand further discussion.

Much has been written about puncture and irrigation of the antrum. Two years ago Dr. McWilliams demonstrated the King's middle meatus canula before this section. Obviously it is unsuited to taking a culture. While I have used it satisfactorily in irrigating chronic antra, I think instrumentation of the middle meatus is unwise in acute or sub-acute cases; the histopathologic characteristics of the membrane readily explain why. Many trochars have been devised for puncture through the inferior meatus. Of those I have tried, I have found Dean's the simplest and best. A cottonwound applicator moistened in 10 per cent cocain solution should be introduced under the inferior turbinate and allowed to remain in situ for ten minutes. Then the trochar should be introduced, and with very little pressure it will easily pass through the thin portion of the naso-antral wall, just inferior to the attachment of the inferior turbinate. The trochar is withdrawn leaving the canula in place, a 5-cc. syringe attached and suction applied by withdrawing the plunger. Should the antrum not contain discharge, the plunger will withdraw easily; should it contain liquid pus, it will be drawn into the syringe; should it contain thick, viscid pus, the canula wlll appear blocked and nothing can be withdrawn. If the pus is withdrawn, a specimen should be collected; if not, 5 to 10 cc. of sterile normal saline should be injected, withdrawn and sent to the laboratory for culture.

The antrum should then be irrigated, collecting the washings in a black-bottom basin. Pus or mucus shreds are diagnostic. It is interesting to note that in two cases in which I have taken cultures and irrigated the antra as outlined above, sending both to the laboratory, the cultures were negative, while cultures of the shreds were positive.

In a recent paper, Sewall advises the cytologic examination of the specimen. If pus, a direct smear is made; if culture is taken, it is centrifuged and a smear made from the sediment. He contends that mononuclear or polymorphonuclear leukocytes are rarely found in normal sinuses. He states that "normal antrums show no cellular content of inflamatory nature; low grade infection is productive of monou clear leukocytes; while the more active processes furnish either polymorphonuclear leukocytes alone or polymorphonuclears mixed with mononuclear cells." I have adopted this method but have had so little experience with it that I do not feel that I am qualified to discuss it.

Usually, these procedures are sufficient to make a diagnosis, but if any doubt exitsts, iodized oil should then be injected into the antrum and other roentgen-ray studies made. I have found it more satisfactory to have these roentgen-ray pictures made with the patient in the erect position. McAuliffe advises fluoroscopic examination, but I have not tried this. With such roentgen-ray studies, the thickness of the membrane can be measured, and the presence of edema or polypi readily determined.

With such methods, more accurate diagnoses can be made. The culture is of further value, in that an antogenous vaccine may be made, if desired. I have found this of real therapeutic value in some cases.

Having arrived at a diagnosis of an infected antrum, the question of operation must be considered. In some cases, as

shown by the iodized oil roentgenograms, the membranes are so hopelessly diseased that a radical antrum operation is necessary. In the majority of cases, simple antrumotomy will suffice.

Since so many surgeons use such different methods, perhaps a discussion of technic would be interesting. I first swab the nasal mucosa with adrenalin; then, using cotton pledglets saturated in 10 per cent cocain sol., with the excess squeezed out, anesthetize the inferior meatus. I also block the spheno-palatine ganglion with a cotton wound applicator moistened with the same solution; I find this necessary to eliminate pain from operation. After ten to fifteen minutes the applicator and packs are removed. The antrum is opened with an antrum knife and the opening enlarged with a nasal rasp. A Grunewald punch is introduced and the opening enlarged backwards. A Yankhauer's punch is then used to lower the opening to the nasal floor. A back-biting punch is used to enlarge the opening forward, when possible. I have never found a back-biting punch that was of much good. If the opening does not appear large enough a Yankhauer punch may be used to enlarge it upwards. The bony edges must be smooth; no projecting spicules should be left. A small pledglet of cotton saturated in mineral oil is inserted under the inferior turbinate and left in place a few hours. This acts as a foreign body to stimulate clotting. The patient is placed in bed in a semi-reclining position; iced compresses are applied to the side of the nose, and an ice bag to the back of the neck.

The post-operative care of such cases is rather simple. After 3 days the antrum should be irrigated; further irrigations depend entirely upon the conditions that develop. Granulation tissue can usually be kept down with 25 per cent silver nitrate solution. If the nitrate fails, the area can be again anesthetized and the granulation tissue removed with a punch.

Should this operation fail to give results, a radical antrum operation may be performed. Any case that has a chance of getting well with a simple antrumotomy should be given that opportunity. Except in hopelessly diseased cases, I do not believe that a radical operation is ever justified unless an intra-nasal operation has been first performed and has failed to give relief.

In cases demanding radical operation, I prefer the Caldwell-Luc, or Oertel operation. The latter has the advantage of leaving a larger and more accessible intra-nasal opening; its only disadvantage is the possibility of having a sinking of the pyriform angle, such as may be encountered with the Denker operation; I have had the good fortune never to see such a result.

In conclusion, I wish to briefly present two cases, which will serve to illustrate these methods.

Case No. 1. Mr. P., white, male, single, 22 years of age, was referred to me August 22, 1927, by Dr. W. H. Parsons, for E. N. & T. examination. His chief complaint was arthritis of the hip joints. His family and past history were not remarkable. His only nasal symptom was "a bad odor in the nose," which was not constant, and he sometimes blew foul pus from the right naris. Examination revealed thick yellow pus in the right middle meatus, draining posteriorly. His tonsils were medium sized, showed chronic infection and contained a small amount of fluid pus. On transillumination the right antrum was dark; by roentgen-ray it was markedly opaque. Using a King's cannula, the right antrum was irrigated, washing out thick yellow pus. Lipiodol was injected. Lipiodol was also injected into the left antrum, for comparison, and roentgenograms were again taken. Marked filling defects were noted in the right antrum, the mucosa being over ten millimeters thick in areas. Radical antrum operation and tonsillectomy were advised. The patient readily agreed to tonsillectomy, but did not want his sinuses operated upon. I agreed to take out his tonsils, first; if that was not followed by relief, I would later perform the sinus operation. Accordingly his tonsils were removed, October 3, 1927, and he had an uneventful recovery. For the next two months I kept him under observation, occasionally irrigating his antrum thrh the normal ostium. He finally agreed to a radical antrum operation, which was performed Jan. 6, 1928, following Oertel's method. His recovery was uneventful. Since operation he has had only one slight attack of arthritis, which followed a severe cold last fall. Nasal treatment was instituted and

shortly after the nasal condition cleared up, the arthritis disappeared.

Mrs. L., white, female, married, 31 years of age, presented herself for examination on May 6, 1927, complaining of a daily low-grade temperature that had existed with a few remissions for over two years. In fact she had gone West for a few months for her health, fearing tuberculosis, but not having any improvement, had returned home. She stated her family physician had made several thorough examinations and had said there was now nothing wrong with her except chronic malaria; he had not been able to demonstrate the plasmodia, but had based his diagnosis on her low-grade temperature and response to quinine. After taking quinine a couple of weeks, the temperature would disappear. He had prescribed two or three sixty day treatments, but after a month or so, her temperature usually returned. Her temperature was usually slightly sub-normal in the mornings, about normal at noon, and she had from one-half to one degree in the evenings. Otherwise, her history was not remarkable, and she did not complain of any symptoms. Her clinical examination revealed the following: Anterior rhinoscopy, negative; there was a small amount of mucous postnasal discharge, but I could not demonstrate its origin; transillumination and nasopharyngoscopic examination, negative; tonsils had been cleanly removed; she had one suspicious tooth, roentgen-ray of which appeared negative. Roentgen-ray of her sinuses showed a very slightly cloudy left antrum. Culture revealed a staphylococcus albus infection. I informed the patient that the infecting organism was a very mild one, but inasmuch as nothing else had relieved here, I advised antrumotomy, to which she consented. Operation was performed May 16, 1927.

Recovery was uneventful. In addition to the usual post-operative treatment, I gave her a course of autogenous vaccine. Thirty days after operation, she still had temperature, though the intranasal opening had healed. Three months after operation her husband came to me to tell me that she had been free of temperature for some time. At last report, some months ago, her temperature continued normal.

DISCUSSION.

Dr. E. F. Howard (Vicksburg): I must discuss Dr. Jones' paper as he always discusses mine and I must return the compliment. I know there is going to be so much going on in the next few minutes that if I don't get up now I won't have an opportunity. Also there are two or three little points on which we constantly disagree, and we might as well continue our disagreement down here.

He mentioned cases that gave no history of symptoms. I contend that in every case, if you go into the history close enough, you will find something that will lead you towards a diagnosis. I have never yet seen a case that gave these symptoms, of pain in some other part of the body, or temperature, in which there was not something in the history that pointed toward the true diagnosis. You will notice in the histories of both cases Dr. Jones cited, there were symptoms that should have drawn attention to the nose, not necessarily to the antrum. There was some odor, pain and discharge.

The other point is one on which he and I constantly disagree, and that is the roentgen-ray. Dr. Jones reads a roentgen-ray plate better than I do. He can look at it and see things that I don't dream of at all, and sometimes he operates on that patient and proves that he was correct. It is simply a case where every man uses a tool that fits his hand best. Some men get better results from points given by roentgen-rays than do others.

In my town we have two or three roentgen-ray men who diagnose a lot of sinus conditions from ronetgen-ray findings, and it is not unusual to have patients come to us and say they were sent by Dr. So-and-So, and that his roentgenograms show the need of sinus surgery.

Recently I had a request for an opinion on a patient from a doctor who among other things had made a complete set of roentgenogram pictures, which is profitable. His opinion was given in this way: "You have a badly diseased left antrum. The picture proves it. Take it to the doctor and we will have it operated on." He sent her down to me to have the operation. I did not see anything to operate for. It seemed she had a pretty good antrum. I found a tooth in bad condition, and as the doctor had written me to do whatever was necessary, I sent her to a dentist, who took an roengen-ray of the tooth, found an abscess at the root and did an extraction. I told her to come back within a couple of weeks. She came back and said: "If I never get any worse than I am today nobody will ever operate on my nose." The antrum was entirely clear.

We cannot consider the roentgen-ray except as one of the aids to diagnosis. No one procedure in diagnosis shows a perfect batting average.

Dr. Robin Harris (Jackson): Dr. Jones' paper has much meat in it. He touched on pathology and he touched on treatment and he said something about diagnosis, but the cases that he has alluded to most are the ones that are the hardest to diagnose. The one that is not a frankly chronic case or a frankly acute case; one not with a lot of polyps in the nose and one with not a lot of

pus. He picked the hardest case to diagnose. There is a low grade infection that probably takes some months to show up clinically. In those cases the bone is diseased long before the diagnosis is made. The bone is diseased misroscopically in each one of those cases from which I have taken a specimen and as far as we know, the bone is diseased long before the dianosis is made.

The point concerning lipiodol is one that is talked about very much at the present time. I have used lipiodol for three years and I find that with a good roentgenogram, well taken, with two or three different views, your pathology is more visible without the lipiodol than with it. It is a nice thing to use to demonstrate the gross pathological tissue but I find if your roentgenogram is well taken that you don't need it so much.

Dr. D. C. Montgomery (Greenville): I think when we get into the discussion of the subject of sinuses, it reminds me of the hot arguments we formerly had concerning tonsillectomy, for this subject vies in popularity with that of tonsils.

We all have our methods of treatment, with some of which we agree and some we disagree. However, we hope that a clearer understanding of the subject is thereby brought about, and better results obtained.

It is not difficult, of course, to diagnose an easy well defined case of sinusitis. There is a type of case however, which Dr. Jones did not mention. To my mind it is very important because of the difficulty in making a diagnosis. This is the type of antrum that has an atrophic mucous membrane lining the cavity. These cases are negative to roentgen ray examination and frequently the symptomatology is mild and not impressive. There are usually enough symptoms present to make us sure that we are dealing with some type of sinus infection. It is in these cases that iodized oil is invaluable. When injected into the antrum the roentgenogram may not show much disturbance, but it is found that the oil is not eliminated for from seven to ten days, due to the destruction of the ciliated epithelium which is normally present. In the normal antrum the time of elimination is from twenty-four to forty-eight hours, because of the sweeping action of the normal ciliated epithelium.

Dr. Jones spoke of an objective sign, the swollen inferior turbinate, which I have found to be of great value in the diagnosing of an early infection of the antrum. This sign is almost pathognomonic of an infection within the antrum, particularly where the middle turbinates are apparently normal and the ethmoids free from disease. I have observed these cases where other means of diagnosis have failed, such as roentgen-ray, irrigation of the antrum, etc., eventually develop into a well-marked antrum infection. The one exception is the physiologic hypertrophy filling in a deviated septal space.

Dr. Edley H. Jones (closing): Dr. Harris mentioned that this type of case is the most difficult to diagnose. Such are the type cases we should discuss.

Lipiodol is an excellent aid, but I do not think it necessary to use lipiodol on every case. In fact, I use it only in the unusual cases when I feel that it can be of real value. A good roentgen-ray will very frequently show the thickness of a maxillary sinus membrane without using lipiodol. In this connection I might mention that Dr. Howard and I both have to read our own roentgenograms. And while we do not have the advantage of being given a diagnosis by the radiologist we probably learn a good deal more about our cases.

Dr. Howard mentioned that each case had a symptom. In writing this paper I meant to limit my paper to those cases which had no obvious symptoms such as would immediately lead one to suspect a diseased sinus. One case had a small amount of mucous postnasal discharge. Vicksburg's atmosphere has a relatively high humidity and I find that the average patient in the thirties has a small amount of mucous postnasal discharge and have come to the conclusion that a small amount is not abnormal.

It is necessary that we have the cooperation of the general practitioner. The ideal way to practice would be to have all of our cases referred us by the general practitioner, but I find that by far the largest amount of my practice comes to me first and it is necessary frequently to refer a patient back to the general practitioner for a general physical examination.

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# NON-SPECIFIC DIARRHEAS.*

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In the past few years the presence of such a large number of untreated, undiagnosed, and certainly uncured diarrheas, coming as patients to the clinic, struck me that some study of the non-specific diarrheas would be apropos. "The need for study in this field can be seen from the fact that in a large proportion of the cases of mild, chronic, or recurrent disarrhea seen in practice, the cause is unknown. Occasionally the physician can demonstrate the presence of a bacterial or protozoal parasite, or an ulceration, but when we cannot do that he is left without any conception of the nature of the basic disturbance in function" (Alvarez). Non-specific is interpreted as those not secondary to a conspicuous etiological factor, such as malignancy, ulcerative colitis, bacillary dysentery, amoebiasis, pellagra, hyperthyroidism, and pernicious anemia.

## NERVOUS DIARRHEA.

This is a matter of erratic peristaltic function, but can also result from deficiencies or excesses of the secretory function brought about through errors of nerve control. The stools are foamy, evil smelling, contain but little bile, and vary in number from four to fifteen daily, depending largely upon the amount of instability of the individual. The attacks are recurrent in type, because it is inconceivable that an exaggerated emotional state can exist long enough to keep up an abnormal peristaltic activity for weeks or months of a diarrhea. But under certain neurological states in which the aggravating psychic factors persist, these recurrences can be so common and the resting intervals between them can be so short that the condition could be called chronic. There is a close association between the activity of the intestinal tract and the nervous system, particularly the emotional sphere of the brain. Unfortunately, the expression of conflicts is usually in the form of gas and constipation when the symptomotology lies in the abdomen. The following case will prove that the latter premise does not always hold good:

Mrs. A. C. G. first came to the clinic in May, 1923, complaining of stomach trouble and acidity, saying that all food disagreed with her, especially in the mornings. She felt badly in the mornings upon arising, and has had alternating constipation and diarrhea for a year's duration. Would frequently faint at stool when constipated. Extremely nervous and despondent, and suffered constantly with easy fatigability. All laboratory work was negative and the physical examination revealed no pathology. She tried the methods of treatment prescribed by us for a while, proceeded to get no better, and then went to Baltimore where Friedenwald studied her in the hospital for six weeks. One of his treatments was an extensive psychoanalysis. She improved for a while, but upon her return home she soon lapsed into her previous symptomotology. In the meantime she had had another child. In July, 1926, she was examined by another physician in the clinic, giving the same line of symptoms that she had before. An abdominal section was decided upon, due to a mass in the right iliac fossa and a retroflexed uterus. The uterus was suspended and a cystic ovary removed. The colon was found to be rotated with the cecum pulled nearly to the mid-line and attached by adhesions at the appendix. In addition to this there was an organized band of adhesions from the center of the ascending colon, attaching it to the psoas muscle, making out of it an almost perfect letter S. This cord was cut and tied, the cecum freed, and the appendix removed, the colon immediately returning to its normal position. The gall bladder, duodenum, and head of the pancreas were found to be normal. Surely this colonic pathology in which the organ had been rotated on its long axis and then bent and curved into an s was sufficient for her disturbance. We congratulated ourselves and the patient, and in our own minds gave Friedenwald the laugh. She made an uneventful recovery and stayed well about a month, the same symptoms then becoming exaggerated. The diarrhea was so intense and the pain so great that opium had to be resorted to frequently, which controlled only the tenesmus and not the frequency. In spite of the attacks the young lady lost none of her beauty and engaged in amateur theatricals and various social activities between periods of exhaustion. With-

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in the past year her marital difficulties which had been unknown were ended by a judge. She went into a gainful occupation, became immediately well, and has suffered no attack since.

One cannot say that this was a defensive reflex against the antipathy to her husband, but was rather an emotional reflex, influencing intestinal peristalsis. Nor could we say that this young woman was a psychopath, but rather the unconscious victim of emotional reflexes.

### ALLERGIC DIARRHEAS

Mild allergies are frequently seen where the individual becomes habituated to numerous stools daily, numbering from three to five, and looks upon mild gastric distress as a part of living, like profanity and prayer. Unless he is of an investigative turn of mind, or possesses an anxious temperament, he will never be interested enough to inquire into the cause of his discomfort. If the reason for the diarrhea is an allergy the discovery is usually made by himself, or he gets an immunity with spontaneous cure and is never treated by a physician.

We are all familiar with the milk diarrhea of infancy, where any modification of cow's milk or the dried and condensed forms will produce an intractable stool frequency; or in older children an abdominal pain, seldom with diarrhea. But the condition of food allergy producing abdominal pain in the adult is often not recognized. The reason for this is that he will become suddenly sensitive, remaining so over a period of months or years, and spontaneously regain his immunity, and continue taking the same proteins without event.

M. S. P., a physician 34 years old, taking a postgraduate course in Europe, was troubled for three years with recurrent attacks of cramping and diarrhea. He never associated it with the ingestion of crabmeat which he had eaten all of his life, and malted milks, which he had been taking frequently without bad results. At the end of the three year period he learned what was giving him the 48-hour diarrheas and he began to experiment with himself. There had been no week in this time when he was free from one or more attacks. Whether these foods were taken separately or together had no bearing on the length or severity of the attack. At the end of the three year period he regained his immunity to the crab meat protein, but the sensitivity of the malted milk remained through a five year period. He can now take each or both with impunity.

Miss M. F., a private secretary, has had a diarrhea, recurrent or constant, ever since she can remember She was kept thin and gaunt by the toxemia and the frequency of the stools, which was from six to eight daily, beginning from one to two hours following the ingestion of eggs or mayonnaise, containing eggs. As soon as all eggs and egg containing food were delated from her diet she made an uneventful recovery.

### SENILE DIARRHEA

This is often a symptom of nephritis in which the bowels take up the excretions of the kidney and may so perform for a long time, or it may be due to any form of sepsis or toxemia. To check the above forms of diarrhea suddenly is often fatal, since it will throw back on a failing organ a load they cannot carry, or the system will be charged with a load of toxins that have found their exit through the intestinal tract. If these are to be checked it must be gone about slowly, and then only when the diarrhea is exhaustive. The usual diarrhea met with in the aged, however, is due to the faulty character or too great frequency of meals, or excessive amount of food taken, because as age advances senile changes takes place in the stomach and intestines, with diminished metabolic activity. If the food intake remains the same with good appetite, severe strain is put on the digestive apparatus, resulting in frequent stools, or in those not so frequent, but larger than normal. This form of diarrhea comes on slowly, gradually increasing according to the intake, proportional to the amount of atrophic and metabolic change. The stools are normal in color, thin, but never watery, the discharges unaccompained by straining, blood, or mucus. This phenomenon might be classed as compensatory at first, but as the condition is neglected the food becomes an irritant to

the intestinal tract, putrefaction sets up, the discharges become watery, brown, offensive, and more frequent. The individual becomes ill, due to the absorption of toxins through a weakened, congested intestinal wall. Along with unknown disturbing changes in the succus intericus the gastric secretions show a dimunition in HCL with a concurrent slowed emptying time and fermentative changes.

For treatment of this condition regulate the food intake as to quantity and frequency, making the meals as far as five hours apart. If there is macroscopic undigested food this should be eliminated, or if there is a digestant for this type of food it should be supplied. Treatment should be initiated by a saline cathartic, followed by a whole day on buttermilk and orange juice, given alternately every two hours; this should be followed by a lowered proteid and carbohydrate diet. Should the stools be light colored and offensive, bile salts should be given.

MECHANICAL DIARRHEAS

These are just common enough to excite comment. Under the head may be listed those resulting from partial fecal impaction, or residue in the sacculations of the colon, explaining often the "constipation and diarrhea" type of intestinal toxemia. This form only ceases after the impaction is sluiced away by many water, putrid passages continuing for days. For treatment of this type of diarrhea the drastic purges usually used are valueless, if not actually harmful. It is much better to use a three pint enema of salt and soda water every hour until four are given. Each enema is to be retained as long as possible. If the enemas are given slowly so that the whole may be taken into the colon, the abdomen kneaded until the solution reaches the caecum before expulsion, they will act with a degree of specificity that is striking. To illustrate an instance of mechanical diarrhea, the following cases is presented:

J. B., a vagabond, was sent by a philanthropist to the Highland Sanitarium, complaining of a painless diarrhea of five weeks duration, with little tenesmus, blood or mucus, thin watery stools, containing floculli of feces and epithelium. Physical examination showed a well developed and well nourished man, 53 years old, who was edentulous, and otherwise, no pathology. Blood examination showed no significant change, urinalysis was negative. In preparation for a barium enema a two ounce dose of castor oil was given the night before. The medication resulted in profound purging, so the patient stated. On the morning of the roentgen-ray examination enemas were given until the return flow was clear, the number required being three. Before sending him to the roentgen-ray department the patient was sigmoidoscoped. The instrument was finally passed under the vehement protestation of the victim, who constantly begged that the weapon be removed, as something was about to happen, and it did. He evacuated a pint of huckleberries, the filling of a pie that he had wolfed down five weeks before. Roentgenogram showed a dilated rectum and sigmoid but where the timid huckleberries were hiding will always be a mystery. The patient was discharged in four days as cured, without further treatment.

GASTROGENOUS DIARRHEAS

Probably this is the most widely acknowledged and commonly recognized form of a continued non-specific diarrhea. By the mere fact of there being no free HCL in the stomach, and a total acidity not higher than 10, true achylia gastrica is not proved, since the simple psychic strain of a test meal may have to do with gastric secretion. It may also be absent in certain debilitating diseases, such as tuberculosis, malignant disease, catarrhal colotis, and chronic pancreatitis. When the condition of the patient improves in these conditions, the gastric secretion will again approach normal, the achylia being but a symptom and not an entity. The mere absence of the HCL in the stomach does not cause a diarrhea, as is borne out by figures from various authorities which say that only 20 to 30 per cent of the achylias have a diarrhea. As a matter of fact, any diarrhea with an absence of HCL in which other factors have been eliminated as its cause and where hygienic, dietetic, and medicinal measures have been invoked, and still the loose bowel movements are not abated, but are stopped promptly with the giving of large

doses of HCL, we must believe that it was the disordered nature of the gastric secretions which produced this diarrhea. Both defective secretion and defective motility favor fermentation in gastric contents and lead to the development of irritating organic acids and gases with a great increase of the bacterial growth. It is known that a hyper-acid stomach will not produce a diarrhea, but constipation is usually the result. HCL is the sheet anchor in the treatment of this common and trying condition. Our method of giving it is to use a teaspoonfull of the U. S. P. dilute muriatic acid to the juice of an orange, three times daily. It is well to fill the glass with water, sweeten to taste and drink a third of the glass before the meal, sip a third during the meal, and finish the glass after the meal. We usually give Parke Davis' panteric tablets as there is often an associated diminution of pancreatic function with the achylia. It is surprising how quickly the diarrhea is abated or cured, and with it other distressful symptoms such as myalgia and neuritic pains.

### PANCREATIC DIARRHEAS

Disease of the pancreas is often associated with constipation, but everyone is familiar with the tremendously large greasy, grayish-white stools of an advanced case of pancreatitis, accompanied by great emaciation and cachexia. The stools are so large that the patient wonders from where so much fecal material can come. But in the milder cases, and early in the disease there are no such clear and distinct signs and symptoms. The disease begins insidiously and the history elicits a story of vague digestive disturbances of several years duration. To these may be added symptoms that suggest choleocystitis, or gastric and duodenal ulcer. The pain in chronic pancreatistis does not have periodicity or relationship to meals, but will occur all through the day, expressing itself as an ache or hurt in the epigastrium, usually to the left of the midline, often with definite tenderness to pressure. There is a diminution of the enzymes with the character of the stools varying according to the variance in the carbohydrate and fat splitting ferments present. Since the procuring of the duodenal contents by the method described by Einhorn with the duodenal tube has been perfected a definite diagnosis of pancreatic dysfunction can be made, and if these ferments are there in normal quantities it is sufficient evidence pointing against pancreatic disease; however, a constant absence or dimunition of trypsin, steapsin, or diataste is sufficient to indict the pancreas. The stools of a mild pancreatic diarrhea will occur in the morning, be two or three in number and each larger than the morning stool would be. The appearance of fats and perhaps undigested animal tissue is visible to the eye and very evident under the microscope. The patient is not very ill, but invariably has a sallow, pasty look, and complains of almost constant abdominal distress, not amenable to the alkalies or belching, but is somewhat relieved by the stools.

Mrs. C. L. M., 42 years old, came to the clinic complaining of a diarrhea of six years duration, morning in type, with a daily fever ranging from 99.4 to 100°, of four years duration. She was diagnosed duodenal ulcer in Denver and was so treated without relief of symptoms. She had a tonsillectomy, appendectomy, and hemorrhoidectomy, and extraction of all suspicious teeth. She had had a negative tuberculin test and repeated roentgen-rays of her chest were negative. A complete gastro-intestinal examination demonstrated the only pathology to be that the descending colon had an absence of haustration, and the ileo cecal valve was incompetent. A Graham-Cole examination of the gall bladder showed a very small gall bladder shadow but with good function. A fractional examination of the stomach contents showed a very low total acidity, the highest being 17 at the end of the first hour. The free HCL was 10 the first half hour and was absent in 1½ hours. Examination of the stool showed a considerable amount of mucus, many undigested food particles, many fatty acid crystals, many neutral fats and considerable amount of soaps. Examination of the duodenal contents showed a diastasic activity of 60. Another examination of the duodenal contents showed no amylitic activity at the end of three-quarters of an hour. Following the ingestion of fatty meals for three days neu-

tral soaps, fatty acid crystals, and neutral fats were found in large quantities, the diarrhea being increased. Chemical analysis of blood and urine showed nothing significant, and blood counts and Wassermann were negative. A diagnosis of diminished gastric and pancreatic function was made and she was put on a bland diet, colonic massage was instituted, she was given two Parke Davis' Panteric tablets with her meals with large doses of dilute HCL. As long as she is taking her substitution therapy, restricting the fats in her diet, she improves and feels quite well, but when it is left off her diarrhea and abdominal discomfort returns.

It would seem that with the array of diarrheas just gone over and the multitude of those that have not been mentioned that when a case of loose bowels comes into the office that the doctor would fly away in a panic and not even attempt to definitely conclude as to the etiology. But there are certain routine measures that should go with each examination. The most essential thing of course is a history and a complete physical examination. When this is done a protoscope should be used to eliminate that most frequent site of the etiology of the diarrhea—the first eight inches of the colon. By this method one can usually eliminate colonic tuberculosis, amebiasis, catarrhal colitis, idiopathic ulcerative colitis, simple ulverative follicular colitis, proctitis, and amyeloid ulcer. If the proctiscopic examination is negative one may be assured that the condition is due to either functional or organic disturbances in the stomach, pancreas, reflex or chemical irritation in the small intestine. A fractional gastric analysis is essential in all chronic diarrheas. If one is still at a loss, after study of the gastric and duodenal contents, roentgen-ray examination will sometimes be of benefit. However, the use of the sigmoidoscope and the stomach tube, with the history and physical examination, plus a store of horse sense and good judgment is sufficient armamentarium to insure a reasonably accurate diagnosis.

DISCUSSION

Dr. Donovan C. Browne (New Orleans, La.): Dr. Douglas' paper certainly deals with a timely subject and I wish to congratulate him on his handling of this very difficult subject; one which has been sadly neglected and upon which much work is yet to be done. To my knowledge there is no work at present which adequately deals with this subject or even gives a comprehensive classification.

I am quite interested in the handling of the gastrogenic diarrheas, and I wish to stress the fact that all achylias do not develop diarrhea, but the absence of this protective barrier often allows infection and various organic acids to pass into the duodenum and a duodenitis may result from whence the process is carried to the pancreas and biliary tract, it is quite often that we find these conditions co-existing and probably accounts for many of the failures to get relief by simple administration of hydrochloric acid. The pathology has extended beyond the altered gastric secretion and must be dealt with also if results are forthcoming.

A word of caution, I believe, is justifiable concerning "Nervous Diarrhea." The effects of emotional state upon the intestinal tract is definite, but it should be borne in mind that any patient who has had a diarrhea for months is apt to be somewhat upset and under tension, and before a diagnosis of nervous diarrhea is made, a most careful and exhaustive study should be instituted. It is laxness in this respect which leads to many mistaken diagnoses, neurasthenia.

Probably the most interesting phase of his paper to us just now is the allergic diarrheas. This is not a new subject, of course, but it is sure to demand our attention. It has been long recognized that various foods may produce diarrheas in certain susceptible people. Pediatricians are far in advance of workers in other fields, in this respect. They take cognizance of the food sensitizations and seasonal occurrences of certain forms. If it is possible to produce a hyperemia and congestion in the respiratory tract by contact with certain seasonal pollons. It is certainly plausable that a similar condition may be produced in the G. I. tract by foods either seasonal or otherwise. Certainly this phase of diarrhea is worthy of more consideration and work.

We have recently seen cases of ulcerative colitis with diarrhea which show seasonal recurrences, clearing up entirely at other times.

Dr. J. E. Knighton (Shreveport, La.): I enjoyed Dr Douglas' paper. I have heard Dr. Douglas read several papers, and in his characteristic, rather poetic and humorous way he has brought to us the lesson of his paper in such a

way that it is certainly very impressive. He cavered the various steps of his paper in such a splendid way that there is not very much left to say with reference to the actual discussion of those particular heads.

The thing I should like to emphasize is that when you have determined that a diarrhea is non-specific in the sense that the essayist pointed out, you must not come to the conclusion that because it is non-specific you may not get to the bottom of the condition and determine what is the real etiology in the case.

Every case of chronic diarrhea, whether it be specific or non-specific, has a cause.

So that is the plea I want to make, and the thing I want to emphasize. Let us not get the impression that when we have come to the conclusion by our investigations that it is none of the well-known specific diarrheas, that we are helpless to find what the real cause is.

Dr. Luther Longino (Minden): I want to say that I enjoyed very much the paper read by Dr. Douglas on The Non-Specific Diarrheas.

In this connection I would report the case of a very stout, healthy, married young man, who came to me some time ago for treatment of an annoying diarrhea, that would come on from time to time without any special or apparent cause.

I made the usual investigations to determine the nature of the trouble but still could not account for those periodical diarrheas. This young man spent only part of his time at home during the week and part out in the country, but it finally developed that the days he stayed at home he suffered from the diarrheas, but the three or four days spent out in the country his diarrhea was very much improved.

The further study of the case led to domestic unhappiness in the home and forces us to accept as the cause the mental response on the digestive tract as has been outlined above. I think it very important in all these functional diarrheas, that the psychic element be considered in these patients.

Dr. A. C. Eustis (New Orleans, La.): I am afraid we are getting along the same line regarding diarrheas that Dr. Johns spoke of regarding anemias. I think it is a mistake to speak of achylic diarrheas, nervous diarrheas, and so forth.

There is some cause for the diarrhea, as Dr. Knighton has said. Instead of classifying diarrheas as above mentioned, I classify diarrheas into specific and non-specific, dividing the non-specific into the irritative and eleminative. In my experience a vast majority of the hyperthyroid or achylic diarrheas are eliminative, i. e., an attempt of nature to remove certain offending materials.

I noticed in the nervous case cited by Dr. Douglas that he spoke of the offensive stools. Very often a putrefactive process is going on in the intestinal tract due to the presence of putrefactive bacteria which results in poisons being formed.

Some years ago in some experimental work it was possible to produce a diarrhea in dogs by the intravenous injection of certain of these amins, formed by putrefaction in the intestinal canal. These eliminative diarrheas are the attempts of nature to remove the toxic amins in the intestinal tract by diarrhea.

I think the treatment depends on whether it is an irritative or eliminative diarrhea.

In conjunction with the achylia, as well as with the pancreatic diarrheas, it is interesting to review probably a little of the chemistry that goes in these cases. It is well to remember that the collagen, which is the substance that makes up tendons of tough meats and coats every microscopic fiber of meat, is digested in the intestinal tract by the pancreatic juice only after it has been acted upon by free hydrochloric acid. In the absence of hydrochloric acid or pancreatic juice you get no digestion, and your meat fibers remain in the intestinal canal and undergo putrefaction, with the accumulation of toxines, producing an eliminative diarrhea.

The alllergic diarrheas would be classed as an irritative diarrhea, and are caused by the irritation to the mucosa by an allergic substance.

Before closing, there is one question I should like to ask Dr. Douglas. He said he had a paroxysmal tachycardia, and I wondered what he was doing smoking a strong cigar.

Dr. D. N. Silverman (New Orleans, La.): I enjoyed Dr Douglas' paper, and he certainly covered the non-specific diarrheas. I don't agree altogether with some of the statements that have been made.

Achylic diarrhea is quite often a very different condition from a pancreatic diarrhea. Because we have a diminution or absence of the hydrocloric acid in the stomach, it does not signify that we have pancreatic dysfunction, or pancreatitis. The achylia that is associated with pernicious anemia, for instance, may cause a diarrhea, and yet examination of the duodenal contents of pancreatic enzymes may show no diminution in their strength.

I certainly want to agree with Dr. Douglas in the statement that he gives large doses of hydrochloric acid. We find small doses of hydrochloric acid are of practically no benefit in stopping the diarrhea. Folin, of Harvard, was able to give tremendous doses, two to three tablespoonfuls by adding it to egg albumen, and after being swallowed it is liberated as free hydrochloric acid.

Very often the achylia and the pancreatic condition, or pancreatitis, are associated, and not infrequently are due to underlying chronic infection of the biliary tract. In such an instance, we have to treat the patient for both the achylia and the pancreatitis. On the other hand, treatment of achylia is raher simple but, on the other hand, it is rather difficult to relieve, much less cure, a diarrhea of pancreatic origin.

Dr. S. J. Couvillon (Moreauville, La.): I would like to ascertain from Dr. Douglas, that in mentioning the "specific causes" or diarrhea, won't you class malaria as one of the causes? I'm not sure, doctor, that you mentioned malarial infections as one of the main causes of "specific diarrheas" in your list of classification.

Dr. R. G. Douglas (Shreveport, La.): Just a moment or two to close.

I want to say, primarily, that we people in the country are doctors. We try to cure. I do admit with Dr. Browne and others that achylia and pancreatitis can be separated by the etiologic factors. We try to shoot both barrels, hydrochloric acid and the Panteric tablet gotten out by Parke Davis, the best preparation that has been gotten out in a great number of years.

Almost routinely we find evidence of the pancreatic deficiency, a fat stool, and since pancreatic activity depends on hydrochloric acid we give them together even though they be not associated, apparently.

As regards the three kinds of nervous diarrhea, I will say that this woman was carefully treated by us and the best men of Baltimore for a period of seven years. She finally came to operation and all the pathology was corrected. The colon was found to be rotated with the cecum pulled nearly to the mid-line and attached by adhesions to the appendix. In addition to this here was an organized band of adhesions from the center of the ascending colon, attaching it to the psoas muscle, making out of it an almost perfect letter S. This cord was cut and tied. We thought Fridenwald was on the wrong track and all would be well, but sometime afterward there was a recurrence of the symptoms.

This woman was having marital difficulties, but as soon as her husband settled half the estate on her, she broke away from the home life and took the three children with her. She is now selling life insurance and is not very grateful to any of her physicians.

As to Dr. Couvillon's question, I wish to say that I gained all my training in a heavily infested malaria district. Dr. L. T. Baker, who is present today, treated 534 cases of malaria with a demonstration of plasmodia 930 times in 13 months. In a paper we prepared at that time, about eight years ago, we mentioned diarrhea as one of the most significant complications in malaria that we have responding immediately without a dietary regime on intravenous or intramuscular doses of quinin.

The diarrhea of malaria is striking. First, you have almost a surgical abdomen, a good deal of tenderness and rigidity, and much vomiting. There is no doubt, if at that time we were in close contact with eminent surgeons, that we would have had many of these malarial bellies opened. We had to rely a good deal on medical treatment and judgment in the country, and almost invariably we tried out the quinin first. Within twelve or fourteen hours the diarrhea stops. At post-mortem I found the small vessels of the mesentery packed and infected with malaria plasmodia. Almost a gangrene in the fatal cases had already set in.

Dr. A. C. Eustis (New Orleans, La.): What I meant to say with respect to the treatment of the nervous cases was to cut down on the meat at the same time.

# EPILEPSY AND EPILEPTOID CONDITIONS.*

E. McC. CONNELY, M. D.,

NEW ORLEANS.

When we venture into the realm of epilepsy, we enter upon comparatively unknown, though by no means unexplored, territory. I have nothing new to contribute on the condition, nor do I intend to attempt a treatise on the subject as a whole, but I would like to present a few cases which seem of interest, and if you will bear with me for a few minutes I should like to summarize briefly the essential points of our present knowledge and conception, or conceptions, of the condition.

By epilepsy is usually understood a sudden loss of consciousness which is usually accompanied by convulsive movements and other characteristic phenomena and followed by amnesia. These seizures are divided into those symptomatic of some definite condition and those for which no cause can be found—idiopathic epilepsy. With this point of view in mind, the diagnosis is at once simple and at the same time most difficult. Simple, if we see the patient in a typical fit or can obtain a comprehensive description of a typical spell from a qualified observer and can definitely rule out all of the many conditions which may produce convulsions as part of their syndrome. Most difficult, because, in the first place, the seizures are by no means always typical and, in the second, they usually happen irrespective of time or place, therefore the chances of a trained observer being present are slight and to the uninitiated a fit is a fit and a rather alarming spectacle and seldom are the details noted with sufficient clearness for purposes of fine differentiation, so we are generally compelled to build up our case to a considerable extent on half observed facts and to some extent on surmise.

*Read before the Louisiana State Medical Society, New Orleans, April 9-11, 1929.

But our troubles have only just begun, for our point of view has not taken in the full situation. After the elimination of the convulsions which occur as part of the symptomatology of such conditions as brain tumor; brain abscess; cerebral arteriosclerosis; brain injuries; chronic lead poisoning; kidney disease; hysteria, etc., etc., and reducing our field to the so-called, true or idiopathic epilepsy with its grand mal and petit mal types of seizures, we have still to consider the great variety of states which occur as equivalents to the seizures, and in addition to grand mal, petit mal, and the various psychic reactions called epileptic equivalents, we may have certain types of migraine; possibly some forms of dipsomania; urticaria; edemas; sweating, etc., occurring as epileptic phenomena, and the differentiation of these various conditions is interesting, but difficult. And when we undertake the task of recognizing and distinguishing these conditions we are further handicapped by our extremely limited knowledge of the exact nature of the disease, if it is a disease, for if convulsions may be and are caused by numerous organic, toxic, and even functional conditions, are not all convulsive seizures symptomatic of some unknown condition rather than an entity in themselves? If this is the case, what is the cause and what is the pathology?

Space will not permit me to discuss the various theories which have been advanced as to the etiology. I can only say that we do not know the cause, that hereditary; alcoholism in parents; prenatal syphilis; neuropathic diathesis; parental influence; endocrine disturbance; and so on, cannot be sustained as specific causes. Indeed, if the seizures are symptomatic rather than a disease in themselves, it would be reasonable to suppose that the attacks are in reality manifestations of a number of causes rather than of any single one when the wide variety of phenomena which seem to be epileptic in nature are considered.

Pathologically, we are no better off, and the vast number of investigations which have been carried out have never penetrated the veil of mystery which clothes the actual organic changes, if any, which are responsible. In fact, even though, because of the loss of consciousness, we concede the brain, as the seat of consciousness, to be the site of the lesion or lesions producing the condition, the actual centers involved cannot, at present, be demonstrated, nor have the investigations of chemical changes in the blood and so forth been rewarded with any greater success.

The following cases seem of interest to me as illustrating some of the difficulties in diagnosis and some of the variations in reactions:

Miss A. M., white female, aged 22 years. No occupation.

F. H. Nothing of consequence.

P. H. Normal birth, full term, twin baby. She had the usual diseases of childhood. Diphtheria at 10 years and scarlet fever at 12 years. Had one convulsion at a year old, cause undetermined.

P. I. In 1918, at the age of 13 years, she had a severe attack of influenza with a relapse. Following this and coincident with beginning of menstruation she began to have seizures. Seizures have become gradually worse and more severe. They are both nocturnal and diurnal and at irregular intervals, with a number of light spells between the severe spells. She has had a great deal of treatment—dietetic; various drugs; such as bromides and luminal; and a number of serums, including goat ovary. Her menstruation was very irregular and the goat serum had apparently regulated it; however, it was irregular again. When I first saw patient she had recently recovered from an attack of typhoid fever. During the typhoid she had no seizures, but they began again immediately afterwards. Patient suffers from very obstinate constipation. She was taking 6 grains of luminal daily.

On examination, general physical showed nothing of special note. She is poorly nourished, with long chest.

Neurologically: Pupils were markedly dilated, but reacted to light and accommodation. There was no nystagmus. Deep and superficial reflexes were present and equal. No sensory changes could be demonstrated. At times there were some twitchings of the muscles of the left arm.

Gynecological examination revealed an infantile uterus with some displacement. Serology has all been reported negative.

The psychic situation was bad, in that the mother and other members of the family never allowed the patient out of their sight. She was not allowed to participate in any of the usual activities of a young woman of her age for fear she would have a seizure. Even shopping trips were taboo. Her home was on a plantation where she did absolutely nothing and had no particular form of recreation or entertainment, nor any occupation. She was very much better whenever she was in the city and seemed to get worse when she returned to her home.

Luminal was continued and corpus luteum was given hypodermatically. Her diet was regulated and an effort made to clear up her constipation. With the apparent affect of typhoid in mind, foreign proteid was given.

Seizures seemed more or less unaffected by all of treatment. Appetite was unaffected and constipation continued, but menstruation improved.

During a course of a year and a half she was witnessed in a number of attacks which were not in any ways epileptic—she did not lose complete consciousness; had no clonic or tonic movements; and the attack lasted a considerable period of time, and, in my opinion, they were hysteroid in nature, and I felt that this opinion was confirmed after I had brought on several deliberately. The family was finally persuaded to allow her to lead a more normal life, going to parties, etc., and her improvement was marked. At the present time she has had only one light seizure in a period of about 8 months. She has put on weight; her entire mental attitude has changed and she is much better in every way, although her constipation persists in spite of all treatment.

Miss A. S., white female, aged 12 years, student,

F. H. Mother has had facial paralysis with a positive blood Wassermann and has received intensive treatment. Nothing of any other consequence in family history.

P. H. Nothing of special consequence.

P. I. About the middle of September, 1928, the patient had a severe convulsion, followed in the course of 6 weeks by 2 others. The first lasted about 20 minutes and was followed by a severe headache. The last was of about 15 minutes' duration. The patient's left leg would become numb and feel heavy, would flex on the abdomen and she would fall; she lost consciousness; on one occasion bit tongue; had tonic and clonic movements; but was not incontinent. After seizures she could not stand and had severe headache.

Mother stated that patient had had numb sensation in leg for 2 years prior to seizures.

On examination, pupils were rather irregular and seemed somewhat sluggish. Knee jerk seemed slightly less active on left. There was a scar on the tongue. Corneal anesthesia and pharyngeal anesthesia was present. Nothing else of note was found. Physically she had a subacute appendix. She was operated for this and had an uneventful recovery. Wassermann was negative; blood negative and feces negative.

When she was about 10 days post-operative she had a seizure which was witnessed by a nurse. She did not lose consciousness, was afterwards able to give full account of attack, and in every way it seemed a typical hysteroid episode.

Diagnosis of hysteria was made, as it was felt that the description of seizures by the family were probably tinctured by their own fear of epilepsy. After discharge from the hospital, patient had two very mild seizures and there were several crying spells interspersed. She was put on small doses of bromide which controlled spells very well, and as soon as she was able to get about following operation her seizures stopped and she felt very much better. Patient was last seen in January. She was very much better and had had no seizures except on one occasion, when she became upset over someone breaking into the yard.

F. M. White male, aged 35 years, machinist.

F. H. Italian abstraction on father's side.

Nothing of consequence.

P. H. Born in New Orleans. Was always healthy. Received blow on head in 1914, but is vague about it. Used alcohol moderately, smokes cigarettes. Never used narcotics. Chancroid and buboes at 15 or 16 years. Gonorrhea in 1915. Patient went to fourth grade in school.

P. I. In 1915 he had some slight spells, when things would seem confused to him, but he does not think he lost consciousness. These attacks continued and became gradually worse until in April, 1920, he had one in which he fell and lost consciousness. A second occurred in June, 1920. He continued to have spells at intervals of about 3 months, but did not always lose consciousness, some spells only amounting to momentary dizziness. In March of 1922 he had a severe seizure and was unconscious 3 hours. He applied for treatment in April, 1922.

On physical examination he presented two scars in the left inguinal region and a scar on the penis. Nothing else of note.

Neurologically: His pupils were irregular in outline and sluggish to both light and distance.

Psychologically: He showed a mental age of 16.1 years.

Blood and spinal fluid Wassermann were negative, as were other laboratory tests.

During first residence of some eight or ten weeks he adjusted very well, once having an altercation with another patient, and he had no seizures of any sort. The diagnosis of epilepsy was not concurred in.

This patient has been more or less under supervision since 1922 and has had hospital observation a number of times and in a number of places. A number of his seizures were observed and the diagnosis varies in instances, but not as to epilepsy. The usual diagnosis was hysteria. A positive blood Wassermann was obtained on one occasion and anti-luetic treatment given. He drank heavily and was frequently involved in trouble. In hospitals he would have altercations with other patients and would sometimes be insulting and abusive towards nurses. Finally his general misconduct culminated in an atttempt at suicide. This followed an alcoholic debauche.

After attempting suicide he stopped drinking altogether and subsequently became somewhat more amenable to discipline, but continued to have periods of days when he was surly, irritable, becoming abusive, quarrelsome, etc., but always seemed to remember the occurrences and was very contrite afterwards. The general trend was towards mental deterioration, and finally after several years he was observed in both petit and grand mal attacks as well as in attacks which seemed hysterical.

J. R. White male, aged 33 years, farmer.

F. H. Nothing of consequence.

P. H. His health was good in childhood. He sustained no serious injuries. He denied venereal disease. Denies use of alcoholics and drugs. States that he has had spells of unconsciousness since birth.

P. I. He has continued to have seizures and is unable to perform his work upon the farm because of them. He cannot give a description of the seizures.

On physical examination patient had had a hernia and a number of other conditions which had no bearing upon his seizures.

Neurologically: He had a tendency to drag his foot when walking and swayed in walking with eyes closed. He had a suggestion of a Romberg. His deep reflexes were exaggerated, but equal. His abdominal and cremasteric reflexes were diminished. There was no Babinski, but an exhaustible ankle clonus both right and left. No sensory

changes could be demonstrated. Pupils were equal, regular and reacted promptly and well to light.

Mentally: He was very dull, but showed no evidence of psychosis. Blood and spinal fluid Wassermann were strongly positive.

He was observed in several epileptic seizures.

Summary: This patient has been more or less under observation for several years. He has had intensive anti-luetic treatment, but has grown progressively worse from a physical standpoint. His epileptic attacks, however, are not quite as frequent now as when he first came under observation. If the history is reliable in this case, he is an epileptic who has developed cerebro-spinal lues in addition.

E. C. Colored male, aged 33 years, tailor.

F. H. Reveals nothing of note. Nothing of consequence elicited in P. H. and history as to the onset of seizures is very vague.

Patient was admitted to hospital for heart lesion, and during residence he suddenly became acutely fearful; was very hysterical; ran and hid, said someone was trying to kill him. This episode lasted several hours and patient cleared up completely. He denied the use of alcohols or drugs, but cocaine was suspected. He was later discharged to his home. In three months he was returned with the history of having attempted to attack his wife with a hatchet. He was quiet, well behaved and co-operative in every way. He denied having attacked his wife. After a short period of residence under very close observation he had an episode during which he suddenly became very much confused and was fearful, agitated and disturbed. Said someone was trying to kill him, etc. This cleared up in the course of a few hours and patient had amnesia for the attack. Later he had another attack in which he became confused, wandered away, and upon his return had no recollection of going, where he went, or why.

Nothing was found in physical examination to account for attacks and they seemed of undoubted epileptic origin.

Mrs. L. B. White female, aged 22 years, housewife.

F. H. One sister epileptic. Nothing else of note.

F. H. She had the usual diseases of childhood, but no serious illness or injuries. She has had severe attacks of pain in side (inguinal region) since she was 9 years old. She began to menstruate at 15; never had any pain but was irregular. She has had one pregnancy.

P. I. At 19 she began to have spells. The first occurred at the end of her menstrual period. Since then spells have occurred two or three days before her menstruation each month and are both nocturnal and diurnal; she will fall; lose consciousness; bite tongue; froth at the mouth; has convulsive movements lasting a few minutes. Afterwards she feels weak and goes to sleep. She had no seizures during her pregnancy, but they recommenced a short time after her baby was born.

Examination showed nothing of special note. Blood and urine were negative.

DISCUSSION.

Dr. C. S. Holbrook (New Orleans): Dr. Connely has brought some very interesting cases of epilepsy for study, and I believe we find only unusual cases of epilepsy to be of much interest. The cases of the usual type one frequently sees, which are always distressing, but from the diagnostic point of view they don't give a great deal of trouble as a rule.

One of the most difficult problems that we have is to determine whether cases showing convulsions should be considered epileptic or not. There is danger in making a diagnosis of epilepsy because we frequently feel at a loss. We feel helpless after we do make such a diagnosis and tabulate the patient as an epileptic. Interest then is more or less lost in the case. A certain routine treatment has been determined which is followed out with more or less good results.

It is difficult to discuss Dr. Connely's paper because of the nature of the cases, but there are several things I want to mention that have to do with epilepsy.

In this country of ours there are about half a million epileptics. There is one case in about every 250 of population. Here in Louisiana there are between 3000 and 4000 cases of epilepsy. Many of these patients are able to get along in a fairly satisfactory way and make a living for themselves. Other cases are so badly affected, convulsions are so frequent and the resultant mental deterioration is so great that they have to be placed in institutions.

I am glad to say that the state now is getting in a position to take care of the epileptics, and Dr. Tompkins is developing a colony for epileptics where certain of these cases will get along.

There are many cases that have only one or two convulsions in a lifetime, and still they may be considered as epileptics.

I was looking up the literature on the subject and found that in the Surgeon General's office there were 3000 titles of epilepsies, various con-

siderations, showing the tremendous amount of literature or work that has been developed along that line.

There is one thing I had in mind which was very forcibly impressed upon me, and that is the frequency with which the diagnosis of epilepsy is made in the various decades of life. The vast majority of epilepsy will develop during the first and second decades. When individuals of thirty, forty or fifty years of age have convulsions, epilepsy is to be considered the least probable disease as far as diagnosis is concerned. When convulsions occur in individuals of ten, fifteen or twenty years of age, then epilepsy is probably the diagnosis. I don't mean an isolated convulsion associated with high temperature or infectious disease, but convulsions that recur at more or less frequent intervals, which had their beginning in early childhood, are very apt to be epileptic. Convulsions that begin after thirty are almost never epilepsy. Brain tumor, cerebrospinal syphilis, lead poisoning, and such things as that must be considered. The mistake, of course, and the harmful reaction to the patient is to make a diagnosis of epilepsy in these individuals who are getting along in years.

There is quite an interesting observation that Dr. Connely brought out, that in the case of fevers, such as typhoid fever, they are very frequently associated with a cessation of epileptic seizures. The patient frequently has a certain amount of immunity. Catabolism is so frequently disturbed during the infection or following operations that for a time there are frequently no convulsions. Almost any operation will appear successful because for a short time after the operation the patient ceases to have convulsions.

I saw an interesting case showing the frequency of epilepsy plus an infection plus syphilis. It was a young boy who developed epilepsy around the age of twelve. At the age of sixteen he developed syphilis. At the age of eighteen he developed meningitis, the regular cerebrospinal fever. He ran a difficult and protracted course from his meningitis and had high fever. After the infection cleared up all evidence of syphilis had entirely disappeared from the cerebrospinal system, as far as one could tell by all our laboratory tests, and he remained well for many months. He continues to have his epilepsy.

Dr. L. V. J. Lopez (New Orleans): I enjoyed Dr. Connely's paper very much, particularly where he brought out in one case about some of the surliness and personality changes.

In cases of epilepsy where some mental deterioration is taking place there is a character defect which almost stamps the epileptic. While it is true that you may find this same character condition in some of the psychotics, the epileptic is a very egocentric, selfish, surly, irritable individual. What makes him that way is a difficult matter to say. Can we blame it on organic changes in the brain, or is it not more a medical-social reason? I am inclined to think the latter is more responsible for the condition. The epileptic is shunned, in some places almost as much as a leper would be. He is almost ostracized from society, and it is a difficult matter for him to secure gainful employment. The result is that he gets egocentric, over-religious and very often develops a true epileptic psychosis.

Dr. Connely brought out very clearly that there are three main manifestations of epilepsy: Unconsciousness, the convulsive state, and the amnesia following the episode.

I also wish to mention what Dr. Holbrook has called to your attention, that there are a great many conditions, after you see a patient who has passed the age of twenty, that you must consider when given the history of convulsions or if seen in a convulsive attack. Among these are brain tumors or abscesses; cerebral hemorrhages, thrombosis; embolism; cerebral arteriosclerosis or softening of the brain; cerebral syphilis, particularly general parsesis; fractures of the skull; cerebral injuries; meningeal hemorrhages, meningitis of various sorts; parasites of the brain; congenital cerebral anomalies; various brain scleroses; and various chronic intoxications, such as chronic alcohol or lead poisoning. As you know, you also get convulsive states in eclampsia, diseases of the kidney, and the rare Adams-Stokes diseases, or heart block.

There has been a great deal in the literature as to what is the seat of convulsions. We will admit that the seat of consciousness is the brain, but there has been a great deal in the literature of debate pro and con as to whether this seat in the brain could be localized as to the cause of the convulsion. Some seem to favor the motor region of the brain due to the fact that you have the clonic phase of sudden motor discharges, the rhythmic motions. However, the clonic phase rather resembles decerebrate rigidity. Others think it might be in the mid-brain due to the fact that you have this clonic phase.

All sorts of theories have been advanced: Numerous pathological processes, various infections, anaphylactic reaction, endocrine imbalance, circulatory disturbances and changes of intracranial pressure; changes of hydrogen-ion; concentration in the blood. All of these theories simply go to show our profound ignorance of what epilepsy really is. It is only when we will know what a convulsion is that our knowledge of epilepsy will be complete.

Dr. Rena Crawford (New Orleans): I was interested in Dr. Connely's saying that attacks of epilepsy are prevented during illness. I have seen many severe cases of chorea that would be stopped by some intercurrent disease. I remember seeing one case of chorea where opiates had been given, and bromides. The child was tossing restlessly in bed, and was being given 90 grains of sodium salicylate. The child had a salicylate poisoning. I think the chorea was stopped not by the drug, but by the toxicity formed by the drug.

Dr. E. McC. Connely (closing): I should like to thank the doctors for the discussion. I think possibly Dr. Crawford's observation of chorea is similar to those we made on epilepsy.

## REVIEWS

### SOME RECENT REVELATIONS CONCERNING RICKETS.*

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One of the astonishing things about the study of rickets is that notwithstanding the fact that it is one of the earliest nutritional and metabolic disturbances to be recognized and studied, little progress was made concerning its etiology until the past ten years. The older writings described the clinical course and gross pathology very well, but the theories as to the cause were most unique and interesting.

The widespread existence of the disorder has long been recognized as a most serious impediment to growth and development in early life, but when more modern methods of detecting it, such as the roentgen ray, were developed, it was soon found that its prevalence was even greater than the most careful observers ever supposed. Naturally this revelation stimulated more intensive effort, and within the past ten years pediatrists and biochemists have united to study the conditions responsible for the disease and to perfect a means to effect its cure and prevention. The progress which has been made is most encouraging and, there is adequate evidence to indicate that if the preventive measures, which have thus far been found to be successful, are generally used, the morbidity of rickets will be greatly reduced.

*From the Department of Pediatrics, Tulane University.

#### THE PATHOGENESIS OF RICKETS

As far as the study of rickets has progressed, there seems to be incontrovertible evidence that at least five factors have been demonstrated which influence the physiologic processess in producing rickets. These are sunlight, exercise, calcium, phosphorous and finally the vitamin D.

#### SUNLIGHT

Notwithstanding the fact that the treatment of disease by sunlight appears to have been recognized in the days of Hippocrates, it has not been utilized to any extent until Rolier demonstrated its value in surgical tuberculosis about twenty-five years ago. While it is true that some of the older text-books of pediatrics in chapters devoted to the treatment of rickets have always emphasized the value of phosphorous, cod-liver oil, sea air and sunlight, it remained for Hess[1] to systematize the use of sunshine in the treatment of rickets. For a while the clinical improvement in cases of rickets treated by sunshine was apparent, but the actual reason for the improvement was not clearly understood. A theory that a relation existed between the nutritional factors spoken of as vitamins and sunshine seemed plausible and investigations were undertaken to determine if an actual relationship existed between these two factors. Independently of each other, Hess[2] and Steenbock[3] and their associates began experiments that showed that various foods, such as oils, milk, cereals, flours, green vegetables and human and calf skin, etc., could be endowed with specific antirachitic properties merely by subjecting them to ultra-violet radiations. About the

same time Huldschinsky was working to the same end in Germany.

The important linking of these two potent factors concerned in nutrition opened up the possibility of eliciting the real nature of vitamins. Hess and Weinstock and associates[5] and Windaus and Hess,[6] by means of chemical analysis and spectral absorption tests, determined that it is ergosterol, a sterol closely allied to cholesterol, which is activated by the ultra-violet rays in this remarkable way.

The identification of this sterol, which had been known for many years to chemists, came about in a unique maner. Hess and his co-workers found that in irradiating vegetable oils and cod-liver oil, the antirachitic substance was always present in the nonsaponifiable fraction and lacking in the saponifiable fraction. As the main constituent of the nonsaponifiable fraction is phytosterol, the desirability of ascertaining if this substance could be activated was at once apparent. In this they were successful.

They next found that cholesterol, the long known lipoid component of animal cells which corresponds to phytosterol in the plant cell life, could be activated also by the ultra-violet ray.

In view of the fact that this ray is so specific in the cure of and protection against rickets and that these radiations do not penetrate the skin, an experiment was devised to determine whether skin could be activated after it had been removed from the body. Skin was selected because it is known to be particularly rich in cholesterol, in fact, there is no other organ, except the brain, which contains a greater amount.

It seemed, therefore, probable that the cholesterol of the skin would respond to irradiation. To this end human skin and calf skin were irradiated and fed daily in 1 gm. *per capita* amounts to rats which were receiving a low phosphorous diet. A control series received non-irradiated skin. The rats receiving irradiated skin were regularly protected from rickets, whereas the control animals developed rickets; the inorganic phosphorous of the blood followed a parallel course. In this way they seem to have justified an earlier hypothesis that the beneficial effect of solar rays or artificial radiations with ultra-violet rays in the treatment of rickets was due to the activation of this cholesterol so widely distributed in the skin. Subsequently, the use of ergosterol has supplanted all other sterols for irradiation.

A vast number of workers attacked the problem after the revelations of Hess, Weinstock and associates, and Steenbock and co-workers, and many contributions accumulated which amplified and corroborated the early discoveries. Conspicuous among the contributions was the work of the late Takahashi of the Institute of Physical and Chemical Research of Tokyo. This distinguished Japanese scientist perfected a substance known as biosterin, a purified vitamin, a preparation which he had isolated from cod-liver oil. A unique characteristic of this substance was that it was photoactive. In other words, it was capable of acting on photographic plates in perfect darkness. Shortly after Takahashi's death, Hamano[7] continued the work and was abe to prove that many of the substances, which Hess, Weinstock and Steenbock had shown were capable of acquiring antirachitic properties by ultra-violet radiation, were also able to act on photographic plates in perfect darkness. Thus it will be seen that the early studies which led to the activation of ergosterol by ultra-violet radiation were extremely interesting and consequently capable of inspiring enthusiasm.

### IRRADIATED ERGOSTEROL

With the revelation of the fact that ergosterol could be activated by ultra-violet radiations, it naturally seemed possible to create a substance which would contain antirachitic properties in a highly concentrated form. It was believed that such

substances would protect infants successfully from rickets without the necessity of administering cod-liver oil or irradiating them with sunshine or quartz lamps. In this way there would be available at all times in a concentrated form all the factors normally derived from potent cod-liver oil and sunshine, both natural and artificial. Not only have several preparations of this activated ergosterol become available, but many of the manufacturers of infant-diet materials have irradiated some of their other preparations.

That irradiated ergosterol prepared according to the requirements prescribed by Steenbock under the license granted manufacturers by the Alumni Research Foundation of the University of Wisconsin, is as close a specific in the prevention and cure of rickets there can be no doubt. The development of this substance has long passed the experimental stage and it has taken its place as one of the most valuable preventive and therapuetic measures which we have ever had in combating rickets. Now that there are so many preparations of irradiated ergosterol available there can be no doubt that its use will become very widespread. If this use could be confined to conservative physicians alone, there would be little need of calling attention to the fact that this most potent substance is not without some danger. Unfortunately, this is not so for the reason that many mothers are now using it without the advice of a physician. It is therefore most important to remember that it was not long after irradiated ergosterol made its appearance in Continental Europe that evidence began to appear that it was capable of causing injury to young infants when improperly used. The first to report the ill effects of this substance was Pfannensteil[8] and Kreitmar and Moll.[9] These investigators observed that, when an excess of irradiated ergosterol was administered orally to rabbits and other animals, illness and certain pathologic changes occurred. Mice died within twenty days after the administration of 1 mg. daily; rats and rabbits died within ten days with 10 mg. daily, and guinea-pigs died within thirty-six days after the administration of 50 mg. daily, while hens were immune. In those animals which died, the characteristic postmortem findings were an atrophic spleen and extensive calcium deposits in the arterial walls, heart muscle, stomach walls, lungs, kidneys and intercostal muscles, associated with secondary sclerosis of greater or less severity. It was obvious that changes of this character produced in so short a time were of a different order than the well-known arteriosclerosis that can be produced in rabbits after feeding them with cholesterol for five or six months, or with non-irridiated ergosterol for two or three months.

These findings were corroborated in this country by experiments conducted by Smith and Elvove[10] in the hygienic laboratory of the U. S. Public Health Service. They showed that 2 mg. and upward of irradiated ergosterol given orally or intra-muscularly to full-grown rabbits may prove fatal in a relatively short time. Doses of 1 mg. or less given three or four times a week seem to be well tolerated. Large doses of irradiated ergosterol produce a more or less marked hypercalcemia. Small doses produce variable results.

In addition to the danger of toxic action from irradiated ergosterol, warnings have been issued concerning the same effects from irradiated milk and other substances. Reyher and Walkoff[11] report the toxic action of ultra-violet irradiated milk and egg-yolk.

One of these authors (Reyher) had reported on March 28, 1927, in a paper before the Pediatric Section of the *Verein fur innere Medizin und Kinderheilkunde,* the toxic action of ultra-violet irradiated milk on the heart and kidneys of experimental animals. These same authors discussed this subject in September, 1927, at a meeting of the *Deutsche Gessellschaft*

*fur Kinderheilkunde* in Pest. They showed microphotographs of severe injury to the heart muscle and kidneys, which they attributed to the feeding of ultra-violet irradiated milk. In their more recent paper they reported experiments which, unlike the previously performed with irradiated ergosterol were made exclusively with irradiated articles of food. These included raw cow's milk irradiated with a new apparatus which excluded oxygen and which was likewise taken in spontaneous amounts by the animals: Ultraktine (an especially irradiated dry milk) given as whole milk as much as the animal would take; daily doses of 0.5 gm. of Pleosoma (a commercial egg-yolk preparation specially irradiated); irradiated Plasmom, and finally, as a control, they tested animals with two drops of a one per cent Vigantol solution in oil, which is equivalent to 1 mg. of irradiated ergosterol daily.

Briefly summarized, the following pathologic changes were elicited in the animals. They were observed in all of the animals but differed in degree according to the variations in the length of time of the experiment. In the spleen a pronounced sinus endothelial catarrh was established. The sinus endothelium was involved in swelling, sloughing off, proliferation and cell destruction, and contained more or less abundant fine-grained iron pigment, as well as absorbed erythrocytes in the cell body, as an indication of the strong decomposition of the blood. The kidney showed the picture of a toxic nephrosis; the epithelium of the small urinary canals, especially in the coiled ones, was degenerated. In their lumen abundant hyaline casts were present. Extensive lime deposits had attached themselves to the necrotic epithelium of the small urinary canals, just as one is accustomed to observe in cases of subacute poisoning by sublimate of mercury. In the musculature of the heart there often appeared earthy points of degeneration which showed likewise a tendency to lime encrustation.

Superficially considered, the pathology caused by excessive vitamin feeding, for which the name *hypervitaminosis* has been suggested, would appear to be rather alarming. It should be borne in mind, however, that even the workers who report the ill effects found a rather wide difference between the therapeutic and toxic doses. Consequently, the margin of safety in the clinical use of irradiated ergosterol appears to be equally wide. It may be repeated therefore for emphasis that in irradiated ergosterol we have the most valuable preventive and therapeutic agent which has ever become available in the history of rickets. In utilizing it however, we should be ever mindful of the fact that this substance is so enormously potent that it cannot be used without careful discrimination as to dosage and that the patients receiving it should be under constant supervision.

### SUN THERAPY

In the use of sunlight, artificial or natural, there are certain precautions which should be observed. Any idea that prolonged exposure is necessary for the purpose of healing or preventing rickets is entirely erroneous. If a quartz light is used, the initial distance is 80 cm. (2 feet) and the time of radiation is two minutes. The distance is kept constant and the time is continuously increased each treatment by two minutes until fifteen minutes are reached and then a period of radiation of fifteen minutes is maintained. The radiation should be made three times a week and the whole body should be irradiated; one-half of the radiation dose is applied to the front, the other half to the back of the body. This procedure has been found to be harmless in the average infant and is curative in most every case.

The curative effect cannot be judged according to the pigment of the skin. In a like manner, children whose skin is normally deeply pigmented must be intensely and longer irradiated. This necessarily must be left to the judgment of the physician.

In summer or in winter when natural sunshine is available, the exposure of infants to the sun has the same effect and the same time of exposure is usually followed. More discretion, however, is required and seasons vary the time of exposure very extensively. The danger of severe sunburn in certain types of skin must be guarded against carefully. The eyes of young infants must always be protected by suitable goggles.

Some time ago the seasonal variation of the antirachitic effect of sunshine and its effect on resistance to disease was studied by Brown and Tisdall.[12] Their experiments were conducted on Albino rats and they found that from the first of March until the middle of October the antirachitic effect of the sun's rays is much greater than during the other months of the year. They call attention to the value of "sky shine" which is the reflected rays from sky and clouds. This is analogous to the reflected sunlight from the sand at the seaside in summer. They found that "sky shine" has approximately from 50 to 60 per cent of the value of direct sunshine. An infant placed on the shady side of a street, therefore would receive approximately two-thirds of the benefit that it would receive if it were on the sunny side.

In the same study they investigated the value of the several quartz glasses and found that they admitted from twenty-five to fifty per cent of the effective rays as compared to ordinary glass.

VITAMIN D

It was formerly believed that any shortage of vitamin A in the young animal invariably results in the development of rickets. While this is true, the vitamin D seems to have a greater claim on the title of "the antirachitic factor." Both of these fat soluble vitamins are recognized, but the vitamin A seems to be concerned more in promoting growth, while the vitamin D is more generally believed to be the ricket-preventing factor. This information was elicited largely by the experimental work on the irridiation of various food-stuffs which has been discussed previously.

With the possible exception of the irradiated ergosterol, cod-liver oil, which has been carefully tested physiologically on rats, is the richest known natural source of vitamin D. Second to this is probably cow's milk from cows receiving proper diet. In addition, other articles of food which have been irradiated by ultra-violet rays are sources of the Vitamin D.

Concerning cow's milk, experiments have proved that the vitamin A content of cow's milk is determined entirely by the nature of the cow's food, but prove, on the other hand, that the vitamin D content depends chiefly or entirely on the degree of exposure of the cow to sunlight. A cow kept in a dark stall yielded a milk poor in vitamin D, even when fed on fresh grass. The cow, therefore, does not manufacture any vitamin A, but simply passes into the milk such supplies as she receives in the food. On the other hand, the vitamin D in the cow's milk is chiefly manufactured in the animal's body, and the quantities of this vitamin taken in normal food are not sufficient to produce a milk rich in vitamin D. Doubtless, if the cow had been treated with cod-liver oil, and thus given an excess of vitamin D in the food, a milk rich in vitamin D could have been produced.

The practical importance of this conclusion is very great, for a large proportion of the cows that provide the milk of our urban population are stall-fed, and their milk must be assumed to be deficient in the antirachitic factor throughout the year. Moreover, these conclusions can be extended to nursing mothers, and it seems to follow that the milk taken by a breast-fed child will be deficient in the antirachitic factor unless the mother either gets a reasonable amount of exposure to sunlight or is given irradiated ergosterol or cod-liver oil. Children living in smoke-covered cities therefore receive very little vitamin D in

their milk throughout the winter, even when they are breast-fed. This deficiency will be compensated for if the child itself gets a reasonable amount of exposure to sunlight or if the child is given cod-liver oil or irradiated ergosterol.

IDENTITY OF VITAMINS

One of the most fascinating phases of the recent studies of utrition has been the effort to identify vitamins. Incontrovertible proof has existed for many years that they are essential factors in every diet, but their true nature, like electricity, has never been clearly understood. Naturally, the intriguing problem of reducing them to tangible substances has attracted many investigators. So far the most logical substances known to organic chemists, which might prove to be vitamins, are phytosterol, cholestrol, carotin, chlorophyll and xanthophyl.

The work of Hess and his associates and Steenbock and associates with cholesterol and their conclusions concerning ergosterol has been discussed previously. The substance, in addition to these sterols, which has been most frequently suspected of being a true vitamin has been carotin which is the yellow coloring matter found principally in carrots but which is responsible for the yellow color of butter and egg yolk. In studies that were made on butter, it has been noted that the coloring matter varies considerably in different samples and that this variation is seasonal. Butter made in the late spring and early summer is usually richer in this agent than that made in other seasons. Moreover, it was observed that butter loses this substance when kept in cold storage for one year and even less.

What was probably the most profitable observation, however, was that when butter lost the coloring there was evidence that its value in supplying the fat-soluble vitamin A was reduced greatly. This led to the belief that there might be a relationship between the color and the vitamin value of butter.

With the knowledge that carotinoids were responsible for the characteristic color of butter, Steenbock and his associates advanced the hypothesis that carotin and the fat-soluble vitamin A were identical.

For a time little, if any, further attention was paid to this phase of the study of nutrition, and the only impression that was left was that this yellow pigment was closely associated with the vitamin A, but final proof that the two were identical was never suspected.

Recently, however, three Swedish investigators[13] have reported the result of their chemical and biologic studies of carotin. They express the belief, according to the *J. A. M. A.*, that the early equivocal results were due to the lack of appreciation of the necessity of vitamin D in the experimental ration. Utilizing modern technique "they obtained growth with as little as 0.005 mg. of crystallized carotin in animals which had been depleted of vitamin A. Furthermore, this pigment gave the blue color with antimony trichloride, heretofore alleged to be specific for vitamin A."

Apparently these investigations justify these authors in reaching the conclusions that carotin and the carotinoid pigments are responsible for the vitamin A in the food-stuffs in which it is known to be present. This, of course, supplies additional evidence and corroborates, in a measure, the studies which have been made previously. It does not, however, prove conclusively that carotin and vitamin A are identical. Whether or not vitamins will ever be reduced to tangible substances cannot be said, but the studies which have led to the preparation of irradiated ergosterol and those which link carotin and the vitamin A are long steps to this end.

RICKETS AND DENTAL CARIES

It has always been believed that the factors responsible for the development of rickets likewise played a part in the production of carious teeth. This led the Mellanbys[14] of England to undertake experiments about five years ago, and they proved

that puppies, in which rickets had been induced by the deprivation of fat-soluble vitamins, showed imperfect dentition. The teeth of such animals were small and irregular, and frequently discolored, while histologic examination showed that the development of both dentine and enamel was defective. Further research established beyond doubt that this imperfect dentition in puppies was due to the lack of vitamin D. A comparison between the histologic characters of these abnormal teeth produced by vitamin lack in dogs, and the structure generally accepted as normal for the human tooth, showed that there was a remarkable similarity between the two. This resemblance naturally suggested that a partial deficiency in vitamin D might be a cause for the dental imperfections that are almost universal in civilized communities. This conclusion was supported by examination of the deciduous teeth of children.

No fewer than 1,036 of such teeth were examined histologically. The general belief has been that the majority of deciduous teeth are normal, but Mrs. Mellanby showed that by far the greater number of them present signs of defective development of dentine. Moreover, the teeth obtained from the dental clinic were more defective than teeth from children of middle-class families. This fact supported the view that defective dentition was due to a diet deficient in fat-soluble vitamins, for one of the chief faults in the diet of the proper classes is the inadequate supply of animal fats. Recently a report of the continuation of this study was made by Mrs. Mellanby and Pattison.[15]

In this report attention is called to the fact that, when children were given cod-liver oil, dental caries did not spread in their teeth as rapidly as it did in the teeth of control groups which did not receive the oil. Cod-liver oil contains, however, the fat-soluble vitamins A and D, and recent work has indicated that vitamin A plays an important part in maintaining the resistance of the body against infection. This made it important to determine which of the two vitamins played the chief part in preventing caries in the human subject.

In the work just reported, only one vitamin was administered, namely, vitamin D in the form of irradiated ergosterol. The authors conclude that the addition of this vitamin has a definite effect in checking the initiation of new carious points and in diminishing the spread of old carious points.

The number of children under observation in this latter study was small, and the authors themselves realized that the results were more or less inconclusive. Nevertheless, the early experiments of Mrs. Mellanby on puppies and the continuation of her work with children formed a chain of evidence which established very strong evidence that the progress of dental caries is largely determined by deficiency of vitamin D. In any event, no one has ever adduced any evidence of greater promise or offered any suggestion of more effective means of controlling caries.

These studies on relation of rickets to dental caries will be interesting to follow through, and in view of the fact that there is now such a widespread utilizaton of preventive measures against rickets, it will be interesting to note whether or not there will be any remarkable decrease in dental caries in the next generation.

### CONCLUSIONS

Some of the impressions gained from the foregoing review of the progress which has been made in studies related to rickets, and other recent contributions not especially included in this review, are:

1. Any doubt concerning the value of ultra-violet radiation derived from direct sunshine, "sky shine," or quart lamps as a "rickets-healing" or "rickets-preventing" measure is no longer tenable. The value of these measures has been definitely proved.

2. The value of irradiated ergosterol or "captured sunlight" in the prevention and treatment of rickets has been proved sufficiently so that it may be almost characterized as a specific. It has, however

been shown that this substance is so enormously potent that the danger of causing injury to infants receiving it is very great, unless it is carefully controlled and the dosage kept at approximately 1 mg. or less given three or four times a week. Larger doses of irradiated ergosterol may produce hypercalcemia and calcium deposits in certain tissues and organs. Confidence, however, should not be shaken in the unquestionable therapeutic value of irradiated ergosterol and it should be used not only in all artificially fed children, but in those who are breast-fed as well. It may be given also to nursing mothers for the purpose of increasing the vitamin D content of their milk.

3. It has been shown that the radiation of milk and other food-stuffs is not without some of the dangers attributed to irradiated ergosterol, and it is believed that the activating of food-stuffs should be discontinued for the reason that the dosage of irradiated food-stuffs cannot be controlled as definitely as the dosage of irradiated ergosterol.

4. While both fat-soluble vitamins A and D are essential factors in the prevention and cure of rickets, the vitamin D seems to be the specific antirachitic factor.

5. Identity of the vitamin A or D has not been definitely proved, but considerable progress has been made in establishing a relation between ergosterol and the vitamin D and carotin and the vitamin A.

6. The Mellanbys seem to have finally proved that carious teeth are frequently the result of the same factors responsible for the development of rickets.

7. That rickets is more prevalent than has ever been supposed before modern methods of eliciting it were perfected. Moreover, evidence is rapidly accumulating to indicate that breast-fed infants are more frequently affected with rickets than has been believed prior to four years ago.

9. It has been shown that rickets can be very much reduced by improving the diet of the mother during the prenatal period and period of lactation, although rickets is chiefly a postnatal condition.

A summary of the measures thus far approved as being desirable for the prevention of rickets would be to encourage breast-feeding, improve the diet of the nursing mother, improve the hygiene of the mother and child, encourage exposure of the child's body to the sun rays, where possible, either in the open or through quartz glass in the window lights, or three treatments a week with a quartz sun lamp and systematic and regular exercise. In addition to this, irradiated ergosterol should be administered to all children during the first year of life, particularly during the winter months. Its use should be carefully supervised by the physician.

If such measures are consistently applied, there can be no doubt that there will be a material reduction in the morbidity of rickets.

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NEW ORLEANS
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*Established 1844*

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## MORE NOSTRUM ADVERTISEMENTS.

Two months ago we called attention to the large number of patent medicine advertisements that are appearing in some of the newspapers of the State, and more particularly to some glaring examples of the type of patent medicine advertisements that are being published in New Orleans. Last night's edition of one of these contemporaneous sheets contained nearly a dozen advertisements of nostrums. Some of these so-called remedies could not be labelled bad or dangerous except for the fact that they are secret preparations inherently dishonest in their claims, but probably not capable of doing very much harm. On the other hand, we can not possibly conceive of a more wretched example of dishonorable handling of advertising than to publish statements to the effect that gall-stone colic can be treated successfully by some remedy or another of which nothing is known, that high blood pressure can be cured by taking medicine internally, that a goiter may be removed by drugs, that the pangs of child birth can be controlled by local application on the abdomen, that bladder irritations irrespective of the cause can be cured by medicine taken by mouth. Aside from the question of ethics concerned in publishing such statements even under the guise of advertisements, one wonders how the readers of an occasional conscienceless newspaper quite stomach some of the nasty, disagreeable, and obnoxious statements made in these advertisements.

## HEALTH EXAMINATIONS.

County medical societies are gradually coming to appreciate the value of campaigns, such as have been conducted for the last two years by the Orleans Parish Medical Society, to encourage health examinations and to show to the laity how life may be prolonged. The largest county in the United States in point of view of population, that of New York City, through its incorporated medical society, is undertaking to carry through a campaign during the month of November which will show the public of their city the advantages of a complete and thorough physical examination every year. In carrying out the object they are using various channels of publicity, including full-page advertisements in such papers as the New York Times.

Although the direct benefits to be achieved by these campaigns can not be accurately evaluated, there is no question that they do a great deal of good in educating the intelligent members of a community to be health-minded. They show not only the benefits to be derived from the examination and what can be done to preserve health, but they also demonstrate

most conclusively that the medical profession is more deeply interested in preventing sickness than treating a patient after he has developed an advanced pathologic process.

## SOY BEAN FOOD FOR CHILDREN.

Obstetricians and pediatricians are frequently annoyed and often are at their wits end because of their inability to give cow's milk to a small infant who is sensitive to the protein contained in this essential food substance. It is true that only a small number of babies ever suffer from milk allergy, but it is likewise a truism that if they do it is very likely to result in their dying of starvation. In order to get a protein which was vegetable entirely and without animal properties, soy bean was selected by Hill and Stuart* as the most promising food to meet the protein requirements of the growing infant. Soy bean flour, to the extent of four per cent, is employed in their particular good preparation. Small amount of calcium carbonate and sodium chloride are added, and in order to raise the fat content sufficient amount of olive oil was added so that the diluted mixture contains three per cent of fat. A small quantity of barley flour is also added. The food that has been made from this formula is called sobee, and the author's report was gratifying results in the feeding of small babies with this particular preparation. Forty babies have been given sobee and they have all done well. In the children suffering from eczema the food in decidedly of benefit, and Hill and Stuart feel that it will be of considerable advantage to the practitioner to feed babies who have severe eczema on this particular food for a time at least.

*Hill, W. H. and Stuart, D. C.: Soy Bean Preparation for Feeding Infants with Milk Idiosyncrasy. Jour. Am. Med. Assn., 93: 985, 1929.

# TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

## CALENDAR.

November 1. Physiology Seminar, Tulane Medical School, 5 P. M.

November 4. Eye, Ear, Nose and Throat Hospital Staff, 8 P. M.

November 8. Physiology Seminar, Tulane Medical School, 5 P. M.

November 8. French Hospital Staff, 8 P. M.

November 11. *Orleans Parish Medical Society*, 8 P. M.

November 12. Baptist Hospital Staff, 8 P. M.

November 14. Gyn. and Obs. Soc., 8 P. M.

November 15. Mercy Hospital Staff, 8 P. M. Physiology Seminar, Tulane Medical School, 5 P. M.

November 16. Hotel Dieu, 8 P. M.

November 19. Charity Hospital, Medical Staff, 8 P. M.

November 20. Charity Hospital, Surgical Staff, 8 P. M.

November 21. I. C. R. R. Hospital Staff, 12 Noon.

November 21. Eye, Ear, Nose and Throat Club, 8 P. M.

November 22. Physiology Seminar, Tulane Medical School, 5 P. M.

November 25. *Orleans Parish Medical Society*, 8 P. M.

November 29. Presbyterian Hospital Staff, 8 P. M.

November 29. Physiology Seminar, Tulane Medical School, 5 P. M.

## SECRETARY'S REPORT.

During the months of July, August and September the Society was in vacation, the meetings being resumed October 14th when the Third Quarterly Executive Meeting was held. At this meeting

reports of the Secretary, Treasurer, Librarian and Special and Standing Committees were read. Dr. Homer Dupuy presented a most interesting case of a man without a larynx. Dr. Oscar Bethea presented a paper on Eversion of the Tonsil.

At the meeting held October 25 the program was as follows:

Transfusion.
By.....Dr. Chaille Jamison
Discussed by Dr. M. J. Gelpi.

Observations of Foreign Clinics.
By.....Dr. Urban Maes

Plans and Functions of the New Hutchinson Memorial Building.
By.....Dr. C. C. Bass

The Secretary's office has written the various Senators and Representatives of Louisiana asking their co-operation in having a Diagnostic Center established here by the United States Veterans' Bureau.

This office has also endeavored to have the Times-Picayune stop the publication of the physician's name in the paid birth announcements.

The Committee on Periodic Health Examinations with Dr. Jerome E. Landry, Chairman, is formulating plans for the annual Longer Life Week which will be held during the month of December.

The Committee to select the orator for the annual Stanford E. Chaille Memorial Oration is headed by Dr. John A. Lanford, Chairman.

The following doctors were elected to Active Membership: Drs. Edgar Burns, Dyer J. Farley, C. J. Miangolarra, Geo. Chas. Miramon, Paul R. Meyer, Sam B. Saiewitz, Geo. L. Smith and Robert A. Strong.

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## TREASURER'S REPORT.

Semptember

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|---|---|
| Actual Book Balance | $1,200.12 |
| Receipts | 381.22 |
| Receipts, Insurance | 784.61 |
| | $2,365.95 |
| Expenditures | $ 824.41 |
| Actual Book Balance | $1,541.54 |

## LIBRARIAN'S REPORT.

Three hundred and seventeen books have been added to the Library during the quarter. Of these 37 were received from the New Orleans Medical and Surgical Journal, 74 by binding, 183 by gift and 23 by purchase.

The work of the summer has been heavy. In addition to the current reference work the following lists have been added to our files.

Hospital records.

Recent investigations on epilepsy.

Carcinoma of seminal vesicle.

Vaccine therapy in children.

Pernicious anemia in pregnancy.

Encephalomyelitis following vaccination.

Congenital malformations in children.

Colectomy.

Angina pectoris and nerve supply to the heart.

Incidence of syphilis.

Potassium sulphocyanate in hypertension.

Miss Marshall was sent to the Medical Library Association in Cleveland, representing this Library and that of the Medical School. About sixty medical librarians were in attendance and the meetings were both practical and inspirational. Among the problems discussed were cataloging, care of unbound periodicals, insurance of libraries and methods of estimating values, student assistance, charging systems and rules for loan. Miss Marshall was elected Treasurer of the Association.

Donors for the quarter are:
Dr. Haidee Weeks
Drs. Samuel and Bowie
Dr. J. H. Musser
Dr. W. A. Lurie
Dr. E. L. King
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H. THEODORE SIMON, M. D.,
Secretary.

# LOUISIANA STATE MEDICAL SOCIETY NEWS

*H. Theodore Simon, M. D., Associate Editor.*

## NEWS AND COMMENTS.

The Seventh District Medical Society holds its regular meeting at Hotel Abbott, Welsh, La., September 12, 1929, Dr. Morgan Smith, President, presiding. Forty-two members from the Seventh District were present.

The following program was very interesting to all:

"The Stump of the Appendix," by Dr. Arthur Vidrine, New Orleans. "The Dislocation of Semi-Lunar Bone of Wrist," with Lantern Slides, by Dr. E. L. Irwin, New Orleans. "Infant Feeding," by Dr. John Signorelli, New Orleans.

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Dr. D. N. Silverman, Associate Professor of Gastro-enterology with the Graduate School of Medicine of the Tulane University of Louisiana, addressed the South Texas District Medical Society at Houston, October 11, 1929, on "Chronic Ulcerative Colitis."

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On August 12, 1929, Dr. D. L. Watson, of New Orleans, read a paper before the Clinical Society of the Presbyterian Hospital entitled "Intra Pulmonary Injections for the Treatment of Tuberculosis—Preliminary Report." At this meeting he exhibited cases and demonstrated the technic. On September 19, 1929, he read a paper on the Home Treatment of Tuberculosis with Intra Pulmonary Injections of Peroxide of Hydrogen.

Dr. Watson has organized a Tuberculosis Research Clinic for a thorough investigation of this line of treatment.

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## MEETING OF ST. TAMMANY PARISH MEDICAL SOCIETY.

On Friday night, October 11, at 8 P. M., the Society met at the New Southern Hotel, Covington, La., with the following doctors present: H. E. Gautreaux, L. Roland Young, J. F. Polk, F. F. Young, F. R. Singleton, J. K. Griffith, R. B. Paine, W. L. Stevenson, and N. M. Hebert. Dr. Lawrence R. Young, of Mandeville, was a guest of the evening. Dr. Cecil Lorio, Pediatrician of Baton Rouge, was the guest of honor and essayist of the evening.

The vice-president, Dr. W. L. Stevenson, presided in the place of L. Roland Young, President, who officiated as acting-Secretary. The matter of the examination of school children was discussed.

Dr. Lorio gave an excellent paper on "Infant Feeding, Diarrhea and Treatment." Statistics were quoted showing that the mortality rate in artificially fed infants in 6 per cent greater than those of mothers fed. Important points were stressed in artificially feeding infants. The subject proved most interesting and much discussion followed. Discussion was led by Dr. F. F. Young.

It was moved and carried that the next meeting be held in Slidell the second Friday night in November.

L. ROLAND YOUNG,
Pres. and Acting Sec.-Treas.

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## FIFTEENTH NATIONAL CONFERENCE OF CATHOLIC CHARITIES.

During November 10-14, will be held the National Conference of Catholic Charities in this city. New Orleans is most fortunate in having this body of public minded and public spirited citizens meet here for an interchange of thought and discussions regarding the problems coming under their heading.

There is extended, through this medium, from the National and Local Chairmen of Committee on Health, Doctors Maud Loeber and Walter J. Otis, an invitation to Superintendents of Hospitals and Sanitariums, and physicians throughout the State, likewise those interested in Social Service, Public Health activities and School curriculum to make every effort to attend this conference.

Speakers of note are meeting with the Conference to give their interpretive analysis of the work being done in their localities. The program for Wednesday, is especially interesting. The topics to be discussed are:

Hospital Facilities for the Care of Persons of Moderate Means.

Some Aspects of Group Medicine With Special Reference to the Pay Clinic. Mr. Michael Davis, Julius Rosenwald Fund, Chicago, Ill.

Medical Social Service and Hospital Rates. Sister Helen, Mercy Hospital, Baltimore, Md.

At another meeting the Problem Child will be discussed.

Other topics of interest will be the Pre-Delinquent Child in Institutions, the Position of the Laity in Organized Social Work, by Dr. Charles P. Neill of Washington, D. C.

There will be round table discussions held on specially selected topics. Any Superintendent, Physician or Social Worker attending through this medium, who desires to confer with a specially directed group on any topic will plase make it known to the Local Chairman on arrival at Registration Headquarters, Roosevelt Hotel, New Orleans, Louisiana.

## WEEKLY HEALTH INDEX.

During the week of September 21, the death rate in the City of New Orleans had a more satisfactory death rate than for many weeks. In this particular week there were 120 deaths with a rate of 14.6. The Government report of the following week, that is, the one ending September 28, showed that there were 145 deaths with a rate of 17.7. The week ending October 5 was practically the same as the preceding one, the total deaths being 141 with the rate of 17.2. Of the 141 deaths in this particular week, 19 were in children under one year of age, occasioning an infant mortality rate of 94. In the corresponding week of last year the death rate for all deaths was 18.0.

## UNITED STATES CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for the position of associate medical statistician, $3,200 a year. A vacancy in the United States Veterans' Bureau, Washington, D. C., and vacancies occurring in positions requiring similar qualifications, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

## NEW ASSISTANT DIRECTOR OF MULFORD LABORATORIES.

A recent announcement has been made of the appointment of Dr. Jose Zozaya as Assistant Director of the Mulford Bilogical Laboratories. Dr. Zozaya, a native of Monterrey, Mexico, was educated in the United States. Under a fellowship from the Rockefeller Foundation Dr. Zozaya studied the organization and work of public health laboratories and agencies. He was then called by the Mexican Government to organize the Institute of Hygiene in Mexico City. He became the Director and is credited with the planning and building of the Laboratories of the new Institute of Hygiene of Mexico and with the organization of its activities.

## MALTBIE RESEARCH FELLOWSHIP.

Announcement has been made that the Maltbie Chemical Company, of Newark, N. J., has contributed a grant for a research fellowship for the coming year to the Philadelphia College of Pharmacy and Science. The research work to be done under this fellowship will be fundamental in character and will cover a study of the toxicity, pharmacology and bactericidal efficiency of creosote, creosote compounds, and constituents of creosote. The work to be done under this fellowship follows the chemical researches on creosote of the past year under the Maltbie Chemical Company Fellowship of Princeton University.

## UNITED STATES PUBLIC HEALTH SERVICE.

Sanitary Engineer H. N. Old is relieved from duty at Memphis, Tenn., on or about Oct. 1, and assigned to duty at New Orleans, La.

Associate Sanitary Engineer E. C. Sullivan is relieved from duty at Memphis, Tenn., about Oct. 1, and assigned to duty at New Orleans, La.

Surgeon C. V. Akin is directed to proceed from New Orleans, La., to Washington, D. C., and return for conference at the Bureau regarding rural sanitation work in the flood area.

Sr. Surgeon L. L. Lumsden is directed to proceed from Washington, D. C., to New Orleans, La., and such other places in Louisiana, Arkansas, Kansas, Missouri, and Tennessee, as may be necessary, and return, for duty in connection with the supervision of studies of and demonstrations in rural sanitation.

Surgeon W. C. Rucker is directed to proceed from New Orleans, La., to Galveston, Tex., and return, for conference with physicians in that city relative to public health matters.

## CORRESPONDENCE.

To the Editor of the Journal.

Sir:

I wish to inform the subscribers of the *Medical Interpreter* that I have resigned as editor of this publication in December, 1928, and that I am no longer responsible in any manner for the actions of its promoters.

ALBERT ALLEMANN, M. D.,
Washington, D. C.

The Fellowship of Medicine and Post-Graduate Medical Association.

London, W. I.
12th September, 1929.

Dear Sir:

We should be grateful if you would insert this letter in your Journal for the benefit of

medical men and women intending to visit England.

We have heard overseas postgraduates complain that London is so large, and so complicated, that it takes a few weeks to learn the way around; they also say that, unless they come armed with letters of introduction to physicians or surgeons, it is difficult to obtain the facilities they require. The Fellowship of Medicine was founded to overcome these difficulties, and overseas postgraduates should as a matter of course, come direct to the Fellowship where, without any charge, they can obtain information, advice and assistance.

We can—and every day do—save time for overseas post-graduates who apply to us either before leaving their own country or on arrival in England.

Perhaps the main point to be realized is that in England the Medical Year begins in October, and extends through the winter and spring until the end of July; August and September being the vacation months, opportunities for work are naturally somewhat curtailed, though the Fellowship endeavors to provide facilities for doctors who are only free for study during that time. We would add, however, that for overseas doctors their arrival in England, in August or September means that they will have ample time to settle down and become acquainted with London before starting work in earnest.

We have been told that the information chiefly desired by overseas practitioners is the dates of the various examinations for degrees and diplomas, and the dates, duration and opportunities for securing resident positions in London Hospitals, as well as the facilities for Special Courses of instruction. All this information the Fellowship of Medicine is in a position to provide.

As far as the fellowship itself is concerned, opportunities for clinical work all the year round are provided in the 40 London hospitals with which it is associated, as well as the Special Courses shown overleaf, and also weekly (free) lectures during the winter months, and weekly (free) clinical demonstrations (except during August and September). In addition, the Fellowship publishes monthly the "Post Graduate Medical Journal" (6/-per annum post free) containing post-graduate lectures, clinical demonstrations, reports of cases, and information on the various courses of instruction. Above all, however, the Fellowship endeavors to help in every way possible medical practitioners requiring advice and assistance, by acting as a central bureau of information, and, of course, no charge is made for this service.

All enquiries should be addressed to the Secretary, Fellowship of Medicine, 1, Wimpole Street, London, W.1.

Yours faithfully,

H. W. CARSON,
Chairman of Executive Committee.

Editorial Note: The program of the special courses for 1930 that will be given in London is in the office of the New Orleans Medical and Surgical Journal. The length of this program precludes its publication. The program is accessible for consultation at any time. Any physician not living in New Orleans wishing information can be accommodated by writing to the Journal Office.

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Dear Doctor:

You and the members of your association are most cordially invited to attend the next annual meeting of the Southern Medical Association which will be held in Miami, November 19-22. Our Association is making every effort to make this the outstanding meeting of the Southern Medical Association. The scientific program, with its twenty Sections, will insure a most diversified and interesting meeting. The clinics to be presented by the Dade County Medical Society will afford an excellent demonstration of the practical phases of medicine and surgery.

The sunshine and optimism of Florida will be injected into a well-arranged entertainment program. Golfing, boating, swimming, fishing and trap-shooting will be here for you. Miami and Miami Beach are amid the tropical setting of the show places of this great nation. At this season of the year, they are particularly beautiful as are other sections of Florida. The members of your Association will be afforded the opportunity of not only attending the best meeting the Southern Medical Association has ever held, but also of visiting our beautiful state to which thousands of tourists make an annual pilgrimage.

It is a privilege for the Florida Medical Association to entertain this great Association and we are desirous of having your members as our guests during the coming meeting of the Southern Medical Association.

Most cordially yours,

SHALER RICHARDSON, M. D.,
Secy-Treas., Editor (Fla.) Med. Assn.

# MISSISSIPPI STATE MEDICAL ASSOCIATION NEWS

*L. S. Lippincott, M. D., Associate Editor*

Dr. J. R. Markette, of Brookhaven, reports that the regular meeting of the Tri-County Medical Society was held at Tylertown, September 10. There was a good attendance and interesting papers were read by Dr. A. B. Harvey and Dr. B. L. Crawford. The subjects were "Traumatic Injuries to the Spleen" and "Treatment of Varicose Veins by Injection." The annual meeting of the Society will be held at Brookhaven in December.

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Dr. and Mrs. Phillip Beekman, of Natchez, have returned home from a three months' vacation in Atlantic City.

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Miss Anne Elizabeth Dicks, daughter of Dr. and Mrs. J. W. D. Dicks, of Natchez, was married to Mr. Lyman Darling, of Nashville, Tenn., on October 12.

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The Homochitto Valley Medical Society met on October 10 in regular session.

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We learned with much pleasure that Dr. Henry Boswell is "still alive," as shown by the following letter:

"I have your letter and regret that we do not have regular reports for the Journal from the Sanatorium, but I have been compelled to cut out the extension department which carried all publicity and it is largely for this reason that you fail to get anything. However, should anything unusual come up I shall try to get it to you. I am still alive, my wife and I just having returned from the Southern Tuberculosis Conference in Nashville, and am sending this to allay your suspicions to the contrary."

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Dr. E. C. Parker and Dr. C. A. McWilliams, of the Staff of the King's Daughters' Hospital of Gulfport, and Grace Moss, Superintendent of the same institution, attended the Annual Hospital Standardization Conference of the American College of Surgeons in Chicago, October 14-18. The Staff of the King's Daughters' Hospital holds well attended meetings each month.

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Drs. R. J. and S. E. Field, of Centreville, have announced that the name of the "Field Hospital and Clinic" has been changed to the "Field Memorial Hospital." A fifteen-room addition to this institution has recently been completed, increasing the capacity to thirty-two patients.

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Dr. G. M. Martin resigned his position with the Martin Sanatorium of Picayune on the first of October. Dr. V. B. Martin is Superintendent.

The Natchez Charity Hospital is undergoing alterations and repairs, which when completed will add greatly to the efficiency of the institution. It is being replastered and painted throughout with a very pleasing color scheme. An entirely new operating room and nurses' lecture hall is being built on the fourth floor. The operating room layout will be thoroughly modern, and will certainly be an improvement much needed and very much appreciated by the Staff. There will also be a new nursery with modern equipment. This will be a very attractive addition as well as an aid to the pediatric department. The improvement is expected to be completed by the first of the year.

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Dr. R. H. Foster, Superintendent of the South Mississippi Charity Hospital at Laurel, reports that in the month of September there was born at the hospital a beautiful, well-developed baby white girl with only one hand. The left hand was missing from the wrist down. The roentgen-ray showed no bones below the lower end of the radius and ulna. The right hand was perfectly developed. There were no other defects.

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Dr. Foster also reports the following:

"A professional sword swallower was a patient at this hospital recently for a minor ailment and before leaving the hospital was kind enough to swallow 30 inches of 'cold steel,' same being the blade of a small sword. While the sword was in his stomach a roentgen-ray picture was made of the man and the lower end of the sword was almost on a line with the crest of the ileum. There was no faking about it—I have the picture."

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Dr. E. F. Howard, of Vicksburg, submits the following: "Judging from a couple of recent letters to the Journal our good friend Cooper seems a bit worried over certain 'crop failures' in Lauderdale County. Perhaps it would ease his mind to learn of the arrival in Vicksburg, September 19, of Leon Stanley Lippincott, Jr., who, judging from the broad grin that his father is wearing, goes a long way towards bringing up the average."

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We are glad to have even the following brief statement from Dr. Orrin H. Swayze, of Yazoo City: "Hello! My Dear Doctor, I would be delighted to tell you news, but to tell the truth, there is no such thing at present in Yazoo City. I hope that the prospects are better for the future."

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The class in "Communicable Diseases and Public Health." conducted by Dr. F. Michael Smith, director of the Warren County Health Department, held its first session at the Y. M. C. A. Building, Vicksburg, on September 26. This class made up of second and third year pupil nurses from the hospitals of the city, was a great suc-

cess last year. The hospitals co-operating are the Vicksburg Hospital, the Vicksburg Infirmary and the Vicksburg Sanitarium.

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It is with much regret that we announce the death of Dr. David Walley, of Lumberton, on September 19, in Jackson. Dr. Walley was 44 years of age and a graduate of Barnes Medical College in 1907. He entered the Medical Corps of the Army in June, 1917, as a First Lieutenant. He served as an instructor at Camp Page, was promoted to the rank of Major, and sailed for over-seas with the 3rd Division. He saw active duty and was with the Army of Occupation, being cited for distinguished service in action and promoted to Lieutenant-Colonel. One year after discharge from the Army he entered the regular army Medical Corps as a Captain and served one year, resigning to accept the Superintedency of the Mississippi State Charity Hospital at Jackson, where he completed an unexpired term and served a full term of four years. He then went to Lumberton as surgeon for the Edward Hines Lumber Company and purchased the Lumberton Hospital which he was managing at the time of his death.

Dr. Walley was a member of the South Mississippi Medical Society, Mississippi State Medical Association, a fellow of the American Medical Association and of the American College of Surgeons. He had been a member of the State Board of Health.

Death was due to gall-bladder disease and followed an illness of only a few hours.

He is survived by his widow and six children who have the sincere sympathy of every member of the Association in Mississippi.

The high esteem in which Dr. David Walley was held by all who knew him, is well shown by the words of the Secretary of the Lumberton Rotary Club, of which Dr. Walley was formerly a member. He says: "Since the last meeting of the Club, Rotary has been saddened by the passing of an ex-member, 'Dave' Walley, who resigned hih membership less than a month prior to his untimely death. The hospital has lost the man who built its fame; Lumberton has lost one of its most whole-hearted citizens; and the number of folks who have lost a loyal friend is innumerable. The thoughts of the club go out to the wife and family."

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The semi-annual meeting of the Delta Medical Society was held in Greenville, October 9, afternoon and evening. The scientific program in the afternoon was as follows:

1. A Paper. Dr. R. C. Smith, Drew.
2. Stricture of the Urethra. Dr. W. G. Tabb, Greenwood.
3. Pellagra and the General Practitioner. Dr. Colquitt, Beulah.
4. A Paper. Dr. W. M. Merritt, Boyle.
5. Mediastinal Blastomycosis. Dr. O. H. Beck, Greenville.
6. Relation of the Physician to the Medical Society. Dr. H. A. Gamble, Greenville.
7. Hypertension. Dr. J. B. McElroy, Memphis.

In the evening a banquet was enjoyed at the American Legion Home, to which the ladies were invited. After a prayer by Dr. John Archer, of Greenville, the following program was carried out:

Vocal selection. Mrs. C. E. Spivey, of Hollanddale.

Dance. Misses Clarene and Dorothy Anne Wineman.

"What the Old Gray Haired Physician Thinks of the Present Day Lounge Lizard." Dr. U. S. Wasson, of Moorhead.

Violin selections. Edward Ashley.

Address. Dr. L. F. Ferguson, of Greenwood.

Vocal selections. Lieutenant M. W. Gilland, Greenville.

Address to the ladies. Dr. E. R. Noble, Rosedale.

Vocal selections. Jerre Massey.

Address. Dr. J. B. McElroy, Memphis.

Saxophone selections. Mickey Ashley, Greenville.

"The Frailties of the Doctor from the Viewpoint of the Layman." County Court Judge Ray Toombs, Greenville.

"What Can We Do to Make the Delta Medical Society Better?" Dr. H. A. Gamble, Greenville.

Song specialty. Buddy Herrin, Rosedale.

Lucille's Orchestra furnished the music for the evening. Dr. T. B. Holoman, of Itta Bena, gave the benediction.

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Officers of the Delta Medical Society were elected as follows:

President, T. B. Lewis, Greenville.

Vice-Presidents: From Bolivar County, Dr. H. F. Pace; from Sunflower County, Dr. J. W. Lucas, Moorhead; from Humphrey County, Dr. J. C. Higdon, Belzoni; from Leflore County, Dr. T. B. Holomon, Itta Bena; from Washington County, Dr. C. P. Thompson, Greenville.

Secretary, R. C. Finlay, Greenville.

Delegates and Alternates from the Delta Medical Society to the State Medical Association: Bolivar County, Drs. C. W. Patterson and W. A. Carpenter; Humphrey County, Drs. J. A. Barnes and J. A. Wadlington; from Sunflower County, Drs. R. M. Donald and B. F. McNeil; from Washington County, Drs. A. G. Payne and J. G. Archer; from Leflore County, Drs. W. E. Denman and George Baskerville.

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We were delighted to receive a card from Dr. W. C. Brewer, of Columbus, written from Rochester, Minnesota. He says: "This is a great clinic. With eyes and ears open here one is sure to learn something."

The regular monthly meeting of the Issaquena-Sharkey-Warren Counties Medical Society was held at the Y. M. C. A., Vicksburg, October 8. The following papers were presented:

1. "Nephritis in Pregnancy." Dr. I. C. Knox. Discussed by Drs. E. F. Howard, E. H. Jones, G. W. Gaines, H. H. Haralson, J. S. Austin, and S. W. Johnston.
2. "Abdominal Pain." Dr. G. M. Street. Discussed by Drs. S. W. Johnston and J. S. Austin.
3. "Perinephritic Abscess," with Case Report. Dr. P. S. Herring.

The Society received an invitation from the Armistice Committee of Allein Post, No. 3, of the American Legion to take part in the celebration of Armistice Day this year.

The Program Committee announced that the following members of the Society have been assigned places on the program for the November meeting: Drs. D. A. Pettit, Vicksburg; W. C. Pool, Cary; W. H. Scudder, Mayersville; Dr. F. Michael Smith, Vicksburg; Dr. H. W. Weimar, Vicksburg.

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Dr. T. M. Dye, Secretary of the Mississippi State Medical Association, has sent the following letter to the County Secretaries of the State: "At the meeting of the Mississippi State Medical Association held in Gulfport, May 14-18, 1929, the House of Delegates, without a dissenting vote, increased the annual dues of the Association from three dollars to four dollars. This change will be effective January 1st, when the 1930 dues are payable.

The following proposed changes in the Constitution of the State Association were read and laid upon the table for one year. These will come up at the Vicksburg meeting, May 13-15, 1930, for final disposition:

'Article VI, Section 1. The Officers of the Association shall be a President, a President-elect, three Vice-Presidents, a Secretary, a Treasurer, an Historian, an Editor, and nine Councilors.

'Section 2 (Second sentence). The Secretary, Treasurer, Historian, Editor, and Councilors shall be elected for terms of five years, etc.

'Article VII. The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates selected by the component county societies, (2) the Councilors, (3) the Historian, (4) the Editor, (5) ex-Officio the President, the President-elect, the three Vice-Presidents, the Secretary and the Treasurer of the Association, and (6) all ex-Presidents, provided they still be members of the Association."

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At the regular monthly meeting of the Staff of the Vicksburg Sanitarium and Crawford Street Hospital the following Special Case Reports were presented:

(1) "Cholelithiasis, Stones in Gall-Bladder and Common Duct; Long Standing Jaundice. Operation." Dr. A. Street.

(2) "A Case for Diagnosis." Dr. J. A. K. Birchett, Jr.

(3) "Severe Secondary Anemia." Dr. L. J. Clark.

(4) "Fracture of the Skull Involving the Base." Dr. H. H. Johnston.

(5) "Polycystic Kidney, Bilateral." Dr. S. W. Johnston.

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## SOME HIGH LIGHTS IN MISSISSIPPI MEDICAL HISTORY.*

(Continued)

"Medical organization was by no means at a premium in these early days. The proceedings for the next three years are only recorded in a vague way, in the memory of a few of the older members. Meetings were held, but little was accomplished. The membership was small and only the faithful few who attended regularly seemed to be at all interested. This lack of interest was so evident that in 1874 not only did the programme fall rather flat, most of the essayists being conspicuous by their absence, but the finances were in such bad shape that a committee was appointed to ask an appropriation of three hundred dollars per annum from the legislature to defray the cost of publishing the Transactions. It seems rather a remarkable argument in favor of the statement, so often made, that "history repeats itself" that at this meeting was adopted a resolution demanding a five dollar fee for insurance examinations.

In 1877 the meeting was held at Grenada. As the first definite, authentic record of the efforts made by the Association in matters of public health, the report of the executive committee on this occasion is interesting: "After consultation * * * it was decided to apply to the Legislature for the passage of an act to establish a State Board of Health. Accordingly a bill * * * was presented at the last session of the Legislature, which after being completely emasculated and radically altered, was passed, a copy of which, as passed, is herewith presented. It is needless to say that, in its present form, the law is worthless to the State. * * * The present law should be regarded merely as a permissive act * * * your committee believes it may be made available in ultimately accomplishing the objects sought. * * * It may be fairly presumed that the law will be amended and made effective whenever its capacities and benefits shall be demonstrated and fully appreciated.' The committee also urged the presentation to the Legislature of a registration act, providing laws for the collection of vital statistics, and advised against the introduction of any bill regulating the practice of medicine."

*(Facts gathered from a history of the Mississippi State Medical Association, published in 1910).

# BOOK REVIEWS

*Clinical Laboratory Methods:* By Russell Landram Haden. 3rd ed. St. Louis, C. V. Mosby Company. 1929. pp. 317.

This new edition of a popular laboratory manual will be welcomed by clinical pathologists and laboratory workers in general. Reading through the book, one gets the impression that the author not only has selected good methods, but has tried them out thoroughly. The subject matter is handled in a way calculated to convey explicit directions as to technic and sufficient explanation of fundamental principles involved. Contrary to some works of this nature, the author has included only such materials and methods as are commonly needed in laboratory diagnosis, yet has abstained from making the book too brief or inadequate.

The section on bio-chemistry is very good, indeed; several features are of special value, namely, formulas and directions for running known or check solutions and tabulated charts for colorimetric readings, which give final results without calculations.

The book deserves to retain its place among several others held in high esteem by many clinical laboratory workers.

S. J. LEWIS, M. D.

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*The Toxemias of Pregnancy:* By H. J. Stander. Baltimore, Williams & Wilkins Co. 1929. pp. 161

This monograph discusses in detail the various physiological and metabolic changes occurring during normal pregnancy It contains a classification of the toxemias of pregnancy with a comprehensive discussion of pathological processes due to toxemia *per se* or due to nephritis, the various theories advanced on the changes of the blood chemistry, theories as to the cause, from mildest forms of toxemia to eclampsia, and detailed discussion of the pro and con of opinions as to the conservative or radical treatment of eclampsia. From the statistical tables in the monograph the weight of evidence is in favor of the conservative treatment.

ADOLPH JACOBS, M. D.

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*Monographs on General Agricultural and Industrial Microbiology. Volume I. Morphologic Variation and the Rate of Growth of Bacteria:* By Arthur T. Henrici, M. D., University of Michigan. Charles C. Thomas. 1928. pp. 185.

This monographs discusses, both pro and con, the Cohn-Koch dogma of the constancy of cell forms and the immutability of bacterial species. In Chapter I of the volume the author quotes extensively from scientific investigation on the subject dating from 1901 to the present day. The remaining chapters are devoted to the presentation and discussion of his own scientific investigation on the morphologic variation and the rate of growth of various bacteria. Although the volume is small, having only 185 pages, it represents a magnitude of work and scientific research, and while the volume is of more importance to the scientist engaged in bacteriologic research, the general scientist may obtain many interesting deductions from the work.

EDWIN H. LAWSON, M. D.

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*The Clinical Aspects of Venous Pressure.* By J. A. E. Eyster, B. Sc., M. D. New York The Macmillan Company. 1929. pp. 135.

A significant rise in venous pressure is found in general, only in impending or existing cardiac decomposition. The rise is a direct consequence of the failure of the cardiac muscle. The heart is unable to cope with the blood entering from the veins. Thus the output diminishes, blood accumulates in the veins, and venous pressure rises. A significant change in arterial pressure may not occur because of arteriolar constriction.

In the normal heart the response to increased venous pressure and the consequent greater diastolic filling of the ventricles is stronger contractions and an output equal to the inflow. In the damaged heart, this response is inadequate to the demands. Dilation may occur and in itself cause further damage to the myocardium. At the same time, the sluggish capillary flow resulting from the diminished cardiac output leads to anoxemia in all capillaries, including those of the coronary system. Thus, the damaged heart muscle, under conditions which demand more oxygen, actually receives less. Fatigue is added to the effects of disease and the direct mechanical injury of overdistension. A vicious cycle is established.

Obviously treatment must accomplish one of two things. Either the heart must be relieved of the overload due to the high venous pressure, or it must be strengthened. Rest and venesection serve the first purpose; digitalis (in auricular fibrillation), the second.

The symptoms and signs of cardiac failure are largely an outcome of the high venous pressure. Of these the most important is edema. Concurrently with high venous pressure there is raised capillary pressure, and an excess of fluid is filtered to the tissue spaces. At the same time the anoxemia leads to the changes in the capillary walls, increasing their permeability. Thus, partly no doubt because of increased filtration, partly

because of the passage of plasma proteins, edema is increased.

The foregoing is a very inadequate survey of a part of the subject matter of this excellent monograph. The author discusses many other aspects of the subject: the relation of venous pressure to urinary secretion; its variations in a number of pathological conditions; and methods for its measurement, including a description of his own compact and simple apparatus, which is as easy to operate as a sphygmomanometer.

The author emphasizes the practical value of the measurement of venous pressure. Its value should be evident when one recognizes that "venous pressure is the most direct indication that can be obtained clinically of the extent to which the heart is moving its load of blood from the venous to the arterial side of the circulatory system."

RICHARD ASHMAN, PH. D., M. D.

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*Laboratory Diagnosis and Experimental Methods in Tuberculosis:* By Henry Stuart Willis. Springfield, Ill., Charles C. Thomas. 1928. pp. 330.

A very excellent volume, devoted, as the name implies, to a consideration of laboratory and experimental methods in the diagnosis of tuberculosis. One gathers from reading this book that the author has endeavored to leave no stone unturned in his effort at completeness.

Under the heading of Laboratory Diagnosis we find not only a presentation of staining methods and technique, but a general consideration and interesting discussion of: Body Fluids and Excreta, Tubercle Bacillus, Non-Pathogenic Acid-Fast Bacteria, Methods of Concentrating the Tubercle Bacillus, Demonstrating the Tubercle Bacillus by Inoculation into Animals, Tuberculin, and its Preparation, Diagnostic Application of Tuberculin, etc.

The chapters devoted to Tuberculin and Serologic Diagnosis are interesting and instructive.

Under Experimental Methods are presented studies of tuberculosis experimentally produced. While the subject matter in these chapters is of more interest to investigators, yet there is much to be learned by the practitioner of medicine.

The reviewer feels that this volume is a very excellent one, that the contents are thorough and instructively presented and should be of interest to the practitioner.

J. HOLMES SMITH, JR., M. D.

*The Treatment of Fractures:* By Lorenz Böhler, M. D. Authorized English Translation, by M. E. Steinberg, M. S., M. D. Vienna, Wilhelm Maudrich. 1929. pp. 185.

This work is the resume of the experience of 19 years and the treatment of 10,000 cases, and is an analysis of the search for the causes responsible for many failures.

These he ascribes to anatomical misconception, lack of organization and improper technic. He emphasizes three cardinal points, "Love the life, save the limb and restore function." Emphasis is laid on the fact that a fracture is not simply a bone lesion but an injury to all contiguous soft parts. He insists upon absolute rest until perfect union, and warns against early exercise before complete fixation. He advocates more extensive use of plaster paris in non-padded casts quoting: "If we reduce exactly a broken joint and continuously hold it in good position until union takes place, and at the same time, allow the use of the fractured extremity, we obtain a movable joint, while on the other hand, if we apply massage and passive movements in the first days after the fracture, the joint becomes stiff."

Fractures in youth, results always good if completely immobilized.

Advocates local anaesthesia at site of fracture.

"The most disastrous innovation in the treatment of fractures is the operative reduction of the latter and the fixation of the fragments by the use of large metallic foreign bodies."

This book is well worth reading and should be in the library of any surgeon doing much fracture work.

H. E. BERNADAS, M. D.

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*The Treatment of Fractures and Dislocations in General Practice:* By C. Max Page, D. S. O., M. S. (Lon.), F. R. C. S., and W. Rowley Bristow, M. B., B. S. (Lond.), F. R. C. S. New York, Oxford University Press. 1929. 3rd Ed. Pp. 283.

This is a practical book on treatment of fractures and dislocations, which should be in the library of every general practitioner of medicine.

Its clear type, well-phrased chapters and clarity of expression added to its practical and lucid descriptions, as well as its logical summary, make a book of ready reference, which every practitioner should have constantly at hand. Its simplicity and thoroughness qualify as a text book. Volkmann's contracture (ischaemic paralysis) is easily and cleverly handled in a short chapter.

Suggestions, as for instance, bi-valving a plaster cast while still soft, also one on early massage, passive motions, etc., negative advice on plate use, because of retardation of bony union, which make it not only a ready reference book, but an authoritative adjunct to the armamentarium of the busy doctor. The articles on dislocation, special fractures and injuries to the skull should be read over and remembered.

H. E. BERNADAS, M. D.

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*Physical Examination* N *Diagnostic Anatomy.* By Charles B. Slade, M. D. Philadelphia, W. B. Saunders Co. 1929. 4th Ed. Rev. pp. 196.

The book but for the exception of a few minor omissions, should be valuable to all students.

On page 130 no mention is made of the mid-diastolic murmur in mitral stenosis. On page 148 in discussing percussion of the abdomen no mention is made of shifting dullness in the diagnosis of free fluid.

However, on page 37 the advice to use the fingers in percussion instead of any instrument is well taken. The author in the chapter on "Physical Signs in the Diagnosis of Pulmonary Tuberculosis" brings out some good points; on page 169, he says: "In the vast majority of those cases, when all other means leave us in doubt, the roentgen-ray adds confusion to an already difficult situation." No one would like to be deprived of the help of the roentgen-ray, but this statement is true many times.

Again on page 179 the author states: "There has probably been more nonsense, more unreliable statement and writing expended concerning percussion, as an aid in the diagnosis of incipient tuberculosis than on any other diagnostic proceeding in the practice of medicine." This is absolutely true.

On page 183 the statement: "That one should never say that no rales are present until they have listened and been unable to hear any during and immediately after several acts of coughing." This is a well-known fact and usually carried out by men interested in chest work, but is a much neglected procedure among practitioners as a whole.

The diagrams are interesting, but it is doubtful if they would help the student much. However, we feel that the book fills well the place the author had in mind.

J. M. BAMBER, M. D.

*Tuberculosis—Its Prevention and Home Treatments.* By H. Hyslop Thompson, M. D., D. P. H. London, Oxford University Press. 1928. 3rd Ed. pp. 99.

The description of the predisposing causes and the mode of infection is written plainly and to the point.

The chapter on how to avoid susceptibility is sound, especially the advice as to great care being taken on returning to arduous occupation after an acute illness.

Chapter IV.—"Precautions against infection," should be read by all that either have or come in contact with those who have tuberculosis.

On page 50 the advice that temperature should be taken three times a day, would probably not meet the approval of all. The reviewer is of the opinion that a temperature record of every three hours during the day is better for a while at least and at all times one reading should be in the early afternoon, until the disease is arrested.

The book as a whole may be recommended for those for whom the book is intended, namely, the tuberculous and those interested in the disease, keeping in mind the advice, "Patient and doctor must be in close sympathy and have a common purpose in view."

J. M. BAMBER, M. D.

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*Diseases and Deformities of the Spine and Thorax:* By Arthur Steindler, M. D., F. A. C. S. St. Louis, C. V. Mosby Co. 1929. pp. 573.

This book fills a long felt want. To explain why this is so, I will quote from the author's preface:

"As much as we depend upon individual facts of pathologic and clinical nature as much as we do stand in need of reliable statistics. There is no reason why medical statistics could not be as reliable as are vital statistics. They must, however, be constructed with consideration of all pertinent factors. In this book only those statistics are used which, by weight of figures and reliability of observation, have a claim on force and conviction."

The chapter on congenital deformities of the spine and thorax is extremely good. For example,

the author's discussion of the relation of Spinae Bifida Occuita to Peripheral symptoms such as club foot.

Low back pain is discussed from all angles.

The chapter on Syphilis of the Spine is especially good.

At the end of each of the ten chapters all references are tabulated and a comment on each chapter is given. The illustrations are excellent.

This book cannot be too highly recommended both to the specialist and to the general practitioner.

EDWARD S. HATCH, M. D.

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*Otosclerosis, a Resume of the Literature to July 1928:* Compiled under the direction of the Committee on Otosclerosis, American Otological Society. New York, Paul P. Hoeber. 1929. pp. 742.

This is a work of two volumes representing a complete resume of the literature on otosclerosis and is the first step in an ambitious and laudable effort of the American Otological Society to accomplish a solution of the problem of otosclerosis. Comment on or criticism of the subject matter has been purposely avoided by the committee.

Volume one deals with pathology and etiology, and volume two presents symptoms and diagnosis and treatment.

The two volumes represent an immense amount of hard work and will be of great value in facilitating the further study of octosclerosis.

H. KEARNEY, M. D.

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*Fundamentals of the Art of Surgery:* By John H. Watson, M. B. B. S. (Lond.), F. R. C. S. (Eng.) New York, Paul B. Hoeber. 1927. pp. 349.

This volume written for "those surgeons beginning to practice the art of surgery in provincial towns" is very hard to appraise. It contains much useful technical information, much sound admonition philosophical observations.

In short the material of which it is made is all good and well founded.

This material includes surgical handicraft, solutions, apparatus, etc., case taking; surgical judgment; surgical technique; incisions; pre-operative and post-operative treatment, interfused with sage philosophical observations. Altogether this is the most ambitious program for three hundred and forty pages that this reviewer has ever seen. It would seem that the author has directed his work to those practitioners who will do surgery with one text-book of surgery, one medical practice and a vague recollection of a college course possibly supplemented by ancient note books. Feeling, as I do, that the human race would be infinitely better off is such men were prohibited from using a knife I am unable to find a suitable use for a book that is otherwise excellent.

Briefly the subject matter is well but inadequately treated. The range of subjects is too great for the size of the volume. Still the book is charmingly written with evident earnestness and honesty and its content is accurate and sound.

J. D. RIVES, M. D.

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## PUBLICATIONS RECEIVED.

The MacMillan Company, New York: Hookworm Disease, by Asa C. Chandler, M. Sc., Ph. D. An introduction to the Study of Human Anatomy, by Robert James Terry, A. B., M. D. Edema and Its Treatment, by Herman Elwyn, M. D.

P. Blakiston's Son & Co. Inc., Philadelphia: Materia Medica and Therapeutics, including Pharmay and Pharmacology, by Reynold Webb Wilcox, M. A., M. D., LL. D., D. C. L. Memoranda of Toxicology, by Max Trumper, B. S., A. M., Ph. D. Recent Advances in Tropical Medicine, by Sir Leonard Rogers, C. I. E., M. D., B. S. (Lond.), F. R. C. P., F. R. C. S., F. R. S.

Paul B. Hoeber, Inc., New York: Tularemia, by Walter M. Simpson, M. S., M. D., F. A. C. P.

J. B. Lippincott Company, Philadelphia and London: Interns Handbook, under the direction of M. S. Dooley, A. B., M. D.

Charles C. Thomas, Springfield, Ill. and Baltimore, Md.: The Female Sex Hormone, by Robert T. Frank, A. M., M. D., F. A. C. S.

Washburn & Thomas, Cambridge: The Health of the Mind, by J. R. Rees, M. A., M. D.

F. A. Davis Company, Philadelphia: Clinical Medicine for Nurses, by Paul H. Ringer, A. B., M. D. Nutrition of Healthy and Sick Infants and Children, by E. Noble, C. Pirquet and R. Wegner.

Lea & Febiger, Philadelphia: Pathogenic Microorganisms, by William Hallock Park, M. D., Anne Wessels Williams, M. D., and Charles Krumwiede, M. D.